

Message

From: Kenny, Daniel [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1BE9BB592F144269BCD41DD3A6D8A6D4-DANIEL C. KENNY]
Sent: 11/23/2016 5:05:18 PM
To: Max Safarpour [maximilian.safarpour@basf.com]
CC: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
Subject: FW: BAPMA

Hi Max. I wanted to provide what information I could as a follow up to my email yesterday and let you know where we seem to be falling out on the volatility/buffer for the BAPMA salt. EFED is feeling like they've taken the bridging, drift, and volatility data about as far as they can, and I've got some summarizing bullets for you below. There is still some uncertainty with the volatility issue and that the spray drift buffer likely needs to be bigger than for the DGA because of the lower plant endpoint. However, if you read the last bullet, we may be able to find a temporary fix. For example, if the label incorporated a restriction against applying when temperatures are expected to be above 90 degrees Fahrenheit, we could probably go with a wind directional buffer that would be closer to 100 feet. That way, we could go ahead and register the product and look at the issue further post-registration to see if there's a path forward to removing the restriction in the future. Just an idea.

Please see EFED's comments below:

EFED has completed an analysis of the Bridging of the BAPMA salt of Dicamba to the entire Dicamba acid data set. EFED believes Bridging is appropriate and thus the existing New Use Risk Assessments and ESA Assessments for soy and cotton are applicable to the BAPMA salt action

EFED has considered the rebuttal of the DER for veg vigor data for the BAPMA salt and does not concur with the position in that rebuttal. Therefore, the NOEC for BAPMA remains at 0.0001 lb./acre

EFED has completed a weight of analysis approach for the establishment of an in-field buffer for the BAPMA salt which follows that used for the recently registered Dicamba DGA products (M1691 and M1768). That approach considers the field study as the strongest line of evidence and weighs alternative modeling with AGDISP and AgDRIFT to characterize the certainty in that conclusion. That study suggested an appropriate buffer would be 90 feet. However, several factors influence the establishment of an in-field buffer including

- the field study estimated a distance to the DGA endpoint (0.00026 lb./acre) and not the new BAPMA endpoint (0.0001 lb./acre)
- drift modeling suggests a wide range of possible outcomes using the proposed label limitations similar to the DGA analysis
- employing a weight of evidence approach and accounting for the more sensitive BAPMA endpoint suggests the BAPMA specific drift buffer should be 280 feet (110 ft. x 2.6 difference in endpoint)
- as with the DGA, the in-field drift buffer would only be in the direction of wind at the time of application

EFED has considered two sets of field volatility data conducted under differing temperature conditions. EFED's analysis mirrors that employed for the M1691 and M1768 and suggests that

- the potential for volatility is higher for the BAPMA salt than for the DGA salt
- for the 0.5 lb./acre rate the distance to the NOEC level from volatility approaches approximately 100 feet for upper bound exposures. The distance would be double for the 1.0 lb./acre rate though this is only applied pre-emergent where volatility is less likely to occur

- the majority of modeled estimates, considering the BAPMA dicamba flux data with a weather conditions from different locations where dicamba is used across the country, suggest no exposure above the NOEC beyond the edge of the field
- volatility appears to correlate with temperature, with significantly less flux occurring at less than 90F
- taken together EFED cannot preclude off-site movement above the NOEC above 90°F in some locations and that an in-field buffer would need to approach 100 feet

Please let us know what your thoughts are at this point and we'll see what we can do.

Thanks,
Dan

Message

From: Kenny, Daniel [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1BE9BB592F144269BCD41DD3A6D8A6D4-DANIEL C. KENNY]
Sent: 1/30/2017 11:01:16 PM
To: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
CC: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
Subject: Dicamba

Hello Tina. Just a quick note to let you know that I am in the process of trying to set up a call with OECA on the dicamba seed issue. I'll try to give you a call as soon as I hear back from them on who needs to attend so that we can pick a day. In the meantime, are there any days/times either this week or next that will not work for you?

Also, Kay is going to reach out to you to see if you are interested in renegotiating the dicamba/glyphosate premix. We've heard back from EFED, and although they still expect to get the vegetative vigor studies from the contractors in February, the volatility pieces may not be back until March. Kay is preparing to discuss this with you further.

I'll also need to talk with you about the original dicamba soybean/cotton applications. I am getting some pressure to close those out, so if you prefer to leave them open, we will need to determine a course of action very soon.

If you are available tomorrow, I'll try to give you a call.

Thanks,
Dan

Daniel Kenny
Chief, Herbicide Branch
Registration Division
Office of Pesticide Programs
U.S. Environmental Protection Agency

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 1/31/2017 8:01:15 PM
To: Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]
CC: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
Subject: RE: Dicamba

Dan,

Thank you for the note.

For the conversation with OECA, I would like to include Tom Marvin that I mentioned in my vm, he will be our new director for Regulatory affairs in DC. He actually will be part of a broader tour of the EPA next week Tuesday 3-5pm, if there would be an opportunity then he could join you personally anytime that day, for the rest of the week, we will accommodate the timing that you can get so feel free to suggest times that work for you as well. Look forward to hearing back from you.

I will wait for Kay to give me a call as there are some things I would like to discuss on the RU Xtend submission.

For the original submissions, please call me as we will likely move forward with one of the options you had mentioned to us earlier.

Thanks again

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Kenny, Daniel [mailto:Kenny.Dan@epa.gov]
Sent: Monday, January 30, 2017 5:01 PM
To: BHAKTA, TINA [AG/1000]
Cc: Montague, Kathryn V. ; Rowland, Grant
Subject: Dicamba

Hello Tina. Just a quick note to let you know that I am in the process of trying to set up a call with OECA on the dicamba seed issue. I'll try to give you a call as soon as I hear back from them on who needs to attend so that we can pick a day. In the meantime, are there any days/times either this week or next that will not work for you?

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If you are available tomorrow, I'll try to give you a call.

Thanks,
Dan

Daniel Kenny
Chief, Herbicide Branch
Registration Division
Office of Pesticide Programs
U.S. Environmental Protection Agency

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Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 8/17/2016 11:06:52 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; NYANGULU, JAMES M [AG/1920] [james.m.nyangulu@monsanto.com]
Subject: FW: Notification to Registrations (EPA Reg. # 524-616 and 524-617)
Attachments: EPA acknowledgement brand 524-616.pdf; EPA acknowledgement brand 524-617.20141002.pdf

Importance: High

Kay,

Hello, I hope you had a good week out of the office.

I have been working with Grant to understand if the Notifications for EPA Reg. #s 524-616 and 524-617 have been acknowledged and accepted by RD. These Notifications were submitted on June 9, 2016 and we are now at 69 days waiting for the acknowledgement letters.

Additionally in updating the master labels for each registration, I updated the registration numbers from 524-XXX to the products corresponding approved registration numbers, and added the previously approved alternate brand names (see attached acknowledgement letters). It is my understanding that all of these minor updates fall under PR Notice 98-10 as a Notification and should be considered complete after 30 days.

Prior to submission Dan Jenkins had an informal meeting with you showing the minor changes to the warranty statements for each product. Verbally from Dan, it was communicated to me that you thought this would be a prompt action and cause no concern. I am therefore confused by Grant's email below and the concern over the name and the over the top actions.

Please provide an update on the acceptance of these notifications as I would like to move forward with creating final printed labels.

Please let me know if I can help answer any questions or concerns.

Thanks for moving promptly to complete this action.

Jerry

*Jerry W. Cubbage, Ph.D.
Monsanto Company
800 N. Lindbergh Blvd.
C3518N/C3NA
Creve Coeur, MO 63167
Office: 314-694-7350
Cell: 636-236-8894
Email: jerry.w.cubbage@monsanto.com*

From: Rowland, Grant [mailto:Rowland.Grant@epa.gov]
Sent: Tuesday, August 16, 2016 8:46 AM
To: CUBBAGE, JERRY W [AG/1000]

Cc: NYANGULU, JAMES M [AG/1920]

Subject: RE: Notification to Registrations (EPA Reg. # 524-616 and 524-617)

Hello:

I understand that these two notifications are of importance to you, and while I am trying to work through them as quickly as possible, I have been held up by my management while they discuss the accuracy of your requested alternate brand name. I do understand that this name has already been approved, however that decision was made prior to recent concerns regarding the Dicamba/Vapor Grip name and the proposed over-the-top uses.

I should have word from my management by the end of the day today and will immediately let you know what they have decided. Thank you.

-Grant

*Grant Rowland
Herbicide Branch
Registration Division
Office of Pesticide Programs
703-347-0254*

From: NYANGULU, JAMES M [AG/1920] [<mailto:james.m.nyangulu@monsanto.com>]

Sent: Tuesday, August 16, 2016 8:09 AM

To: Rowland, Grant <Rowland.Grant@epa.gov>

Cc: Montague, Kathryn V. <Montague.Kathryn@epa.gov>

Subject: Notification to Registrations (EPA Reg. # 524-616 and 524-617)

Importance: High

Hi Grant,

I am just following up on your correspondence with Jerry Cubbage with respect to these two registration which required minor amendments.

1. Updating registration number
2. Adding a previously approved brand name
3. Minor change to the warranty language.

According to Jerry, these were expected sometime in July. Kindly let me know the status of these registration amendments.

Thanks again for your help with this.

James Nyangulu

US Agency Regulatory Affairs Manager
202-383-2866 (Office)
202-304-6594 (Cell)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460



OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 31, 2014

Helen E. Mero
Regulatory Affairs Manager
Monsanto Company
1300 I (Eye) Street, NW
Suite 450 East
Washington, DC 20005

Subject: Label Notification per PRN 98-10 – Addition of Alternate Brand Name
Product Name: M1769 Premix Herbicide
EPA Registration Number: 524-616
Application Date: September 25, 2014
Decision Number: 495845

Dear Ms. Mero:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The alternate brand name Roundup Xtend with VaporGrip Technology has been added to the product record.

If you have any questions, you may contact Emily Schmid at 703-347-0189 or via email at schmid.emily@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Emily Schmid for".

Mindy Ondish, Acting Product Manager 25
Herbicide Branch
Registration Division (7505P)
Office of Pesticide Programs



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 2, 2014

Helen Mero
Regulatory Affairs Manager
Monsanto Company
1300 I Street, NW, Suite 450 East
Washington, DC 20005

Subject: Notification per PRN 98-10 – Alternate Brand Name
Product Name: M1768 Herbicide
EPA Registration Number: 524-617
Application Date: September 25, 2014
Decision Number: 495977

Dear Ms. Mero:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The alternate brand name "**XtendiMax With VaporGrip Technology**" for this product has been added to our records.

This notification acknowledgement will be uploaded to the Pesticide Product Label System (PPLS) without a label.

If you have any questions, please contact Mindy Ondish at (703)605-0723 or at ondish.mindy@epa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Mindy Ondish" followed by a small "for" and a line.

Kathryn V. Montague, Product Manager 23
Herbicide Branch
Registration Division (7505P)
Office of Pesticide Programs

Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 8/19/2016 7:13:53 PM
To: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: NYANGULU, JAMES M [AG/1920] [james.m.nyangulu@monsanto.com]; MARVIN, THOMAS [AG/1000] [thomas.marvin@monsanto.com]
Subject: RE: Notification to Registrations (EPA Reg. # 524-616 and 524-617)
Attachments: Master Label 524-616 NOTIF June 9 2016_v1.pdf; Master label 524-617 NOTIF June 8 2016_v1.pdf

Kay and Grant,

Thanks for resolving the alternate brand concern.

Monsanto is currently facing costly production and state submission and approval delays due to the late notice informing us of the rejection of our June 9, 2016 submission.

It is important for me to know if a follow up submission of the attached labels with the warranty statement update where Monsanto chooses to strike the sentence below, which appears to be of concern, will be acceptable to the Agency as a Notification (see attached updated labels with the statement struck):

For in-crop (over-the-top) uses on Roundup Ready crops, crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

Please let me know as soon as possible if this proposed change would be acceptable as a Notification. If so, I would like to receive the Agency's acceptance acknowledgement of the Notifications immediately upon receipt, if possible. My plan would be to submit the attached labels as soon as I hear from you.

Thanks
Jerry

From: Rowland, Grant [mailto:Rowland.Grant@epa.gov]
Sent: Thursday, August 18, 2016 4:15 PM
To: CUBBAGE, JERRY W [AG/1000]
Cc: NYANGULU, JAMES M [AG/1920]; Montague, Kathryn V.
Subject: RE: Notification to Registrations (EPA Reg. # 524-616 and 524-617)

Jerry,

Attached are the Agency's responses to the notifications for EPA reg# 524-616 and #524-617. While we were able to resolve our was initial concern with the alternate brand, at this time we are not able to accept the language Monsanto wishes to add to the Warranty statement. Please review the attached letters and feel free to contact myself or Kathryn Montague with any questions you may have. Thank you

-Grant

Grant Rowland

Herbicide Branch
Registration Division
Office of Pesticide Programs
703-347-0254

From: CUBBAGE, JERRY W [AG/1000] [<mailto:jerry.w.cubbage@monsanto.com>]
Sent: Wednesday, August 17, 2016 7:07 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Cc: Rowland, Grant <Rowland.Grant@epa.gov>; NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>
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Jerry

*Jerry W. Cubbage, Ph.D.
Monsanto Company
800 N. Lindbergh Blvd.
C3518N/C3NA
Creve Coeur, MO 63167
Office: 314-694-7350
Cell: 636-236-8894
Email: jerry.w.cubbage@monsanto.com*

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To: CUBBAGE, JERRY W [AG/1000]

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MASTER LABEL FOR EPA REG. NO. 524-616

Primary Brand Name:

M1769 Premix Herbicide

Alternate Brand Name:

Roundup Xtend™ With VaporGrip™ Technology

Table of Contents for Master Label

I.	Main Label	2 – 35
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** See each label part for more detailed table of contents **

I. MAIN LABEL FOR EPA REG. No. 524-616

[INSERT BRAND NAME]

Herbicide

Complete Directions for Use

EPA Reg. No. 524-616

AVOID CONTACT OF THIS HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY® CROPS), DESIRABLE PLANTS AND TREES, AS SEVERE INJURY OR DESTRUCTION COULD RESULT.

Non-selective, broad-spectrum weed control for many agricultural systems and farmsteads

[Optional label statement: CROPSHIELD™ Formulation]

[Optional label statement: Roundup® – Powerful Performance at a Practical Price]

[Optional label statement: Roundup Ready PLUS™ – Weed Management Solutions]

[Optional label statement: A member of the Roundup® Family of Agricultural Herbicides by Monsanto]

Read the entire label before using this product.

Use only according to label instructions.

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO COMPANY DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

Net contents:

EPA Establishment No.:

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1.0 INGREDIENTS

ACTIVE INGREDIENT:

*Diglycolamine salt of dicamba (3,6-dichloro- <i>o</i> -anisic acid)	14.5%
*Glyphosate, N-(phosphonomethyl)glycine, in the form of its ethanolamine salt	29.2%
OTHER INGREDIENTS:	56.3%
Total:	100.0%

*Contains 178 grams per liter or 1.5 pounds per U.S. gallon of the active ingredient dicamba in the form of its diglycolamine salt, which is equivalent to 120 grams per liter or 1.0 pounds per U.S. gallon of the acid, dicamba.

Contains 360 grams per liter or 3.0 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its ethanolamine salt, which is equivalent to 242 grams per liter or 2.0 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent No's. XXXX, XXXX and XXXXX. Other Patents Pending. No license granted under any non-U.S. patent(s). *[This listing will be updated at the time of printing, if necessary.]*

EPA Establishment No. 524-IA-01

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE,
1-800-332-3111
2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT,
(314)-694-4000

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children

CAUTION!

CAUSES MODERATE EYE IRRITATION

Avoid contact with eyes, skin, or clothing

FIRST AID: Call a poison control center or doctor for treatment advice.	
IF IN EYES	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.• Remove contact lenses if present after the first 5 minutes then continue rinsing eye.
IF ON SKIN	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.
<ul style="list-style-type: none">• Have the product container or label with you when calling a poison control center or doctor, or going for treatment.• You can call (314) 694-4000, collect day or night, for emergency medical treatment information.• This product is identified as [INSERT BRAND NAME], EPA Registration No. 524-616.	

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.

All mixers, loaders, applicators and other handlers must wear: long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride.

Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "all mixers, loaders, applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing

3.2 Environmental Hazards

Keep out of lakes, streams or ponds. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Ground and Surface Water Protection

Point source contamination - To prevent point source contamination, do not mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Do not apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on

or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or anti-siphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil - Do not apply under conditions which favor runoff. Do not apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. Do not apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate as affected by soil type in the Crop Specific Information in section 10 of this label.

Movement by water erosion of treated soil - Do not apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields. Do not treat irrigation ditches or water used for crop irrigation or domestic purposes.

Endangered Species Concerns

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law

3.3 Physical or Chemical Hazards

Spray solutions of this product can be mixed, stored and applied using only stainless steel, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which can form a highly combustible gas mixture. This gas mixture could flash or explode if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source, causing serious personal injury.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto supplemental labeling. Supplemental labeling can be obtained from your Authorized Monsanto Retailer or Monsanto Company Representative.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear: coveralls, shoes plus socks, chemical-resistant gloves made of any waterproof material, and protective eyewear.

4.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage and disposal.

Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes.

PESTICIDE STORAGE: Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.

Store in original container in a well-ventilated and away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Avoid cross-contamination with other pesticides. Keep container closed to prevent spills and contamination.

PESTICIDE DISPOSAL: To avoid wastes, use all material in this container, including rinsate, by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable federal, state and local regulations and procedures.

[Alternate PESTICIDE DISPOSAL statement for transport vehicles only: To avoid wastes, empty as much product from this transport vehicle as possible for repackaging or use in accordance with label directions. If wastes cannot be avoided, offer remaining product or rinsate to a waste disposal facility or pesticide disposal program. All disposal must be in accordance with applicable federal, state and local regulations and procedures.]

CONTAINER HANDLING AND DISPOSAL: *[Optional label statement if applicable: See container label for container handling and disposal instructions and refilling limitations.]*

[CONTAINER HANDLING AND DISPOSAL STATEMENTS AND REFILLING LIMITATIONS FOR CONTAINER LABELS]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID CONTAINERS OF LESS THAN 1-GALLON CAPACITY]

Nonrefillable container. Do not reuse or refill this container.

[Alternate container statement: Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[Alternate container disposal statement: Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 2.5-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 1-GALLON BUT EQUAL TO OR LESS THAN 5-GALLON CAPACITY]

Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.

[Alternate container statement: Nonrefillable container. Do not reuse or refill this container.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over

application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Optional container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 30-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 5-GALLON CAPACITY]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Alternate container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer the container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[Optional container label statement: Return Properly Rinsed Container to Monsanto for Recycling Contact: 1-800-ROUNDUP (1-800-768-6387)]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR ALL REFILLABLE CONTAINERS, EXCEPT TRANSPORT VEHICLES]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning this container before refilling is the responsibility of the refiller. Cleaning this container before final disposal is the responsibility of the person disposing of the container.

To clean this container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer this container for recycling, if available.

[Optional container disposal statement: To obtain information about recycling refillable containers, contact Monsanto Company at 1-800-ROUNDUP (1-800-768-6387)]

[Optional container label statement: Return Properly Rinsed Container to Monsanto for Recycling, Call 1-800-ROUNDUP (1-800-768-6387)]

[CONTAINER HANDLING AND DISPOSAL STATEMENT FOR ALL TRANSPORT VEHICLES AS DEFINED IN 40 CFR 156.3]

THIS LABEL FOR USE WITH TRANSPORT VEHICLES ONLY

Emptied container retains vapor and product residue. Observe all precautions stated on this label until the container is cleaned, reconditioned or destroyed. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, and worn-out threads and closures. Clean thoroughly before reuse for transportation of a material of different composition or before retiring this transport vehicle from service.

5.0 PRODUCT INFORMATION

Product Description: This product is a postemergence, systemic herbicide which can have some soil residual control on small seeded broadleaf weeds, depending upon rainfall and soil conditions. It is generally non-selective and gives broad-spectrum control of many annual weeds, perennial weeds, woody brush and trees. It is formulated as a water-soluble liquid. It may be applied using most standard industrial or field sprayers after dilution and thorough mixing with water or other carriers according to label directions.

[Optional label text: Do not add [Optional label text: surfactants, additives containing surfactants,] buffering agents or pH adjusting agents to the spray solution when [INSERT BRAND NAME] is the only pesticide being applied unless otherwise directed. See the MIXING section of this label for instructions regarding other additives.]

[Optional label text: No additional surfactant in the spray solution is needed. This includes additives containing surfactants, buffering agents or pH adjusting agents when [INSERT BRAND NAME] is the only pesticide used unless otherwise directed.]

Time to Symptoms: This product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of aboveground growth and deterioration of underground plant parts. Effects are visible on most annual weeds within 2 to 4 days. Extremely cool or cloudy weather following treatment can slow activity of this product and delay development of visual symptoms.

Stage of Weeds: Control weeds early when they are relatively small (less than 4 inches). Timely application to small weeds early in the season will improve control and reduce weed competition. Best control of most perennial weeds is obtained when treatment is made at late-growth stages approaching maturity. Refer to the "ANNUAL WEEDS RATE SECTION", "PERENNIAL WEEDS RATE SECTION" and "WOODY BRUSH AND TREES RATE SECTION" for more information on specific weeds.

Always use the higher product application rate within the given range when weed growth is heavy or dense, or when weeds are growing in an undisturbed (non-cultivated) area.

Reduced weed control could result when treating weeds with disease or insect damage, weeds heavily covered with dust, or weeds under poor growing conditions.

Cultural Considerations: Reduced control could result when application is made to annual or perennial weeds that have been mowed, grazed or cut, and have not been allowed to re-grow to the specified stage for treatment.

Rainfastness: Heavy rainfall soon after application could wash this product off of the foliage and a repeat application might be required for adequate weed control.

Spray Coverage: For best results, spray coverage must be uniform and complete. Do not spray foliage to the point of runoff.

Stress: Do not apply to crops under stress due to lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, insects, or widely fluctuating temperatures as injury may result.

Mode of Action: Dicamba, one active ingredient in this product, mimics auxin (a plant hormone) resulting in a hormone imbalance in susceptible plants that interferes with normal cell division, cell enlargement, and protein synthesis. Glyphosate, the other active ingredient in this product, inhibits an enzyme found only in plants and microorganisms that is essential to the formation of specific amino acids.

Maximum Application Rates: The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredients glyphosate or dicamba, whether applied separately or as a tank mixture, on a basis of total pounds of glyphosate or dicamba (acid equivalents) per acre. If more than one glyphosate or dicamba-containing product is applied to the same site within the same year, you must ensure that the total use of glyphosate and dicamba (pounds acid equivalents) does not exceed the maximum allowed. See the INGREDIENTS section of this label for necessary product information.

The combined total application of this product on a site must not exceed 8 quarts (2 pounds of dicamba acid) per acre per year. If additional glyphosate only applications are needed, total combined application must not exceed 6 pounds of glyphosate acid per acre per year. When less than 64 fluid ounces of this

product is used per acre, tank-mix an additional 11 fluid ounces of a Roundup Brand Agricultural Herbicide per acre to maintain an effective rate of glyphosate.

NOTE: Use of this product in any manner not consistent with this label could result in injury to persons, animals or crops, or have other unintended consequences.

6.0 WEED RESISTANCE MANAGEMENT

GROUP	4	9	HERBICIDES
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Dicamba is a Group 4 herbicide whereas glyphosate is a Group 9 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population can contain plants naturally resistant to Group 4 or 9 herbicides. Weed species resistant to Group 4 or 9 herbicides can be effectively managed utilizing another herbicide from a different Group, or by using other cultural or mechanical practices.

6.1 Weed Management Practices

To minimize the occurrence of dicamba or glyphosate-resistant biotypes, observe the following weed management practices:

- Scout your fields before and after herbicide application.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Incorporate other herbicides (e.g., a selective and/or a residual herbicide) and cultural practices (e.g., tillage or crop rotation) as part of your weed control system, where appropriate.
- Use the full recommended herbicide rate and proper application timing for the hardest to control weed species present in the field. Avoid tank mixtures with other herbicides that reduce the efficacy of this product (through antagonism), or with ones that encourage application rates of this product below those specified on this label.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Clean equipment before moving from field to field to minimize the spread of weed seed or plant parts.
- Use new commercial seed that is as free of weed seed as possible.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Report any incidence of repeated non-performance of this product on a particular weed to your Monsanto representative, local retailer, or county extension agent.

6.2 Management of Dicamba or Glyphosate-Resistant Biotypes

Note: Appropriate testing is critical in order to determine if a weed is resistant to dicamba or glyphosate. Call 1-800-ROUNDUP (1-800-768-6387) or contact your Monsanto representative to determine if resistance in any particular weed biotype has been confirmed in your area, or visit on the Internet

www.weedresistancemanagement.com or www.weedscience.org. For more information see the ANNUAL WEEDS RATE SECTION and PERENNIAL WEEDS RATE SECTION of this label.

Directions for the control of biotypes confirmed to be resistant to dicamba or glyphosate are made available on separately published supplemental labeling or Fact Sheets for this product and can be obtained from your local retailer or Monsanto representative.

Since the occurrence of new dicamba or glyphosate-resistant weeds cannot be determined until after product use and scientific confirmation, Monsanto Company is not responsible for any losses that result from the failure of this product to control dicamba or glyphosate-resistant weed biotypes.

The following good agronomic practices can reduce the spread of confirmed dicamba or glyphosate-resistant biotypes:

- If a naturally occurring resistant biotype is present in your field, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices (e.g., crop rotation or tillage) can also be used as appropriate.
- Scout treated fields after herbicide application and control weed escapes, including resistant biotypes, before they set seed.
- Thoroughly clean equipment before leaving fields known to contain resistant biotypes.

7.0 MIXING

Spray solutions of this product may be mixed, stored and applied using only clean stainless steel, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.

Eliminate any risk of siphoning the contents of the tank back into the carrier source while mixing. Use approved anti-back-siphoning devices where required by State or local regulations.

Clean sprayer parts promptly after using this product by thoroughly flushing with water.

7.1 Mixing with Water

PRODUCT PERFORMANCE CAN BE SIGNIFICANTLY REDUCED IF WATER CONTAINING SOIL SEDIMENT IS USED AS CARRIER. DO NOT MIX THIS PRODUCT WITH WATER FROM PONDS OR DITCHES THAT IS VISIBLY MUDDY OR MURKY.

This product mixes readily with water. Mix spray solutions of this product as follows. Begin filling the mixing tank or spray tank with clean water. Add the required amount of this product near the end of the filling process and mix gently. Use caution to avoid siphoning back into the carrier source.

7.2 Tank Mixtures

This product can provide some residual control on small-seeded broadleaf weeds, depending upon rainfall and soil conditions. This product may be tank-mixed with other herbicides to provide longer residual weed control, a broader weed control spectrum or an alternate mode of action. Always read and follow label directions for all products in the tank mixture.

Some tank-mix products have the potential to cause crop injury under certain conditions, at certain growth stages and/or under other circumstances. Read the label for all products to be used in the tank mixture prior to use to determine the potential for crop injury.

Tank mixtures with other herbicides, insecticides, fungicides, micronutrients or foliar fertilizers could result in reduced weed control or crop injury. Monsanto has not tested all tank-mix product formulations for compatibility, antagonism or reduction in product performance. To the extent consistent with applicable law, buyer and all users are responsible for any and all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly specified on this label or in separate supplemental labeling or Fact Sheets published for this product.

Refer to all individual product labels, supplemental labeling and Fact Sheets for all products in the tank mixture, and observe all precautions and limitations on the label, including application timing restrictions, soil restrictions, minimum re-cropping intervals and rotational guidelines. Use according to the most restrictive precautionary statements for each product in the tank mixture.

Always predetermine the compatibility of all tank-mix products together in the carrier by mixing small proportional quantities in advance.

For best results, apply tank mixtures with this product at a minimum spray volume rate of 10 gallons per acre.

7.3 Surfactants and Adjuvants

Although not always required, surfactant may be added to spray solutions of this product.

Nonionic surfactants (NIS) that are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use a rate of 0.25 percent surfactant concentration (1 quart per 100 gallons of spray solution) when using surfactants that contain at least 70 percent active ingredient, or 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants that contain less than 70 percent active ingredient. Read and carefully observe all caution statements and other information on the surfactant label.

Do not add acidifying buffering agents, acidic pH adjusting agents or adjuvants other than agriculturally approved NIS to the spray solution.

Do not use crop oil concentrates (COC) or methylated seed oils (MSO) as adjuvants.

7.4 Colorants and Dyes

Colorants and marking dyes may be added to spray solutions of this product; however, they can reduce the performance of this product. Use colorants and dyes according to the manufacturer's directions.

7.5 Drift Reduction Additives

Nozzle selection is one of the most important parameters for drift reduction. A drift reduction additive may be used with this product to further reduce fine droplets. Not all drift reduction additives are compatible with every nozzle type and pesticide / adjuvant combination. Check with the additive manufacturer to insure that the drift additive will work properly with the spray nozzle, spray pressure and your specific spray solution.

Read and carefully observe all precautions, limitations and all other information on the product label.

8.0 APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT.

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Ground Application Equipment—Boom or boomless systems, pull-type sprayers, floaters, pick-up sprayers, spray coupes and other ground broadcast application equipment

Selective Application Equipment— Shielded and hooded sprayers.

Injection Systems—Ground injection sprayers

APPLY THIS PRODUCT USING PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING THE DESIRED VOLUMES.

SPRAY DRIFT MANAGEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed to ensure application accuracy from ground application onto agricultural field crops.

Controlling Droplet Size

The most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use only spray nozzles that produce very coarse to ultra coarse spray droplets and minimal amounts of fine spray droplets as defined by the American Society of Agricultural and Biological Engineers (ASABE S-572.1). Do not use conventional flat fan nozzles that produce an excessive amount of driftable fines. Common examples are the TeeJet® XR and Turbo Teejet.

Check nozzle manufacturer's recommendations to determine the proper droplet spectrum, operating pressure, boom height, nozzle spacing and ground speed that will deliver the desired droplet size and spray volume of at least 10 GPA for the nozzle selected that will produce a very coarse to ultra coarse spray droplet.

- **Spray Pressure.** Adjust pressure for selected nozzles according to the nozzle manufacturer to maintain very coarse to ultra coarse droplets. Use sufficient spray pressure with air induction nozzles to ensure a good spray pattern, while maintaining very coarse to ultra coarse droplets; use at least 30 psi to ensure proper pattern overlap. Confirm that sprayer rate controller hardware (if so equipped) does not increase pressure above the desired range. Calibrate the flow rate for the selected nozzles on the equipment used to apply this product.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets alongwith a lower percentage of driftable fines.
- **Equipment Ground Speed.** Select a ground speed less than 15 miles per hour that will deliver the desired spray volume while maintaining the desired spray pressure. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray Boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing (not more than 24 inches above target pest or crop canopy). Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. For example, the 110° series nozzle is preferred as it allows for the lowest boom height (maximum of 20 inches above the target pest or crop canopy). Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will dissipate with increased winds (above 3 miles per hour) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- If the wind speed is 3 miles per hour or less and fog is present, indicating a temperature inversion, do not apply this product.

- If fog is not present, conduct a smoke test. Smoke that moves upward confirms there is no inversion present whereas smoke that layers and moves laterally in a concentrated cloud indicates a temperature inversion exists. Do not apply this product during a temperature inversion. Wait until the temperature has risen at least 3 degrees Fahrenheit from the morning low temperature or the wind speed is greater than 3 miles per hour to ensure that any inversion has lifted.
- Do not spray this product when the wind is blowing in the direction of a sensitive area at a wind speed greater than 10 miles per hour.
- For wind speed and direction restrictions for application of this product see the table below:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply this product if temperature inversion exists
3-10 mph	Optimum conditions for application of this product.
>10 – 15 mph	Do not apply this product when wind is blowing toward sensitive areas
> 15 mph	Do not apply this product

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Sensitive areas include known habitat for threatened or endangered species, non-target sensitive crop, residential areas, and greenhouses.

Applicators are required to ensure that they are aware of the proximity to sensitive areas, to avoid potential adverse effects from off-target movement of [INSERT BRAND NAME]. The applicator must survey the application site for neighboring sensitive areas prior to application. The applicator also should consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label, could result in severe injury or destruction to desirable sensitive crops and trees, particularly beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potatoes, soybeans, sunflowers, tobacco, tomatoes, and other broadleaf plants when contacting their roots, stems or foliage.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision.

8.1 Ground Application Equipment

Apply this product at the appropriate rate in a minimum of 10 gallons of water per acre when making a broadcast application using ground application equipment, unless otherwise directed on this label or on separate supplemental labeling or Fact Sheets published for this product. As the weed density increases, increase the spray volume towards the upper end of this range to ensure complete coverage. Select proper nozzles that will avoid generating a fine mist. Check spray pattern for uniform distribution.

8.2 Selective Application Equipment

[Optional text: This product may be diluted in water and applied using a shielded sprayer or hooded sprayer to weeds listed on this label growing in any non-crop site listed on this label.]

In cropping systems, a shielded sprayer or hooded sprayer may be used in between rows of crop plants (row middles). Selective equipment must be capable of preventing all contact of the herbicide solution with the crop and operated without spray mist escape, leakage, or dripping of the herbicide solution onto the crop.

AVOID CONTACT OF THIS HERBICIDE WITH DESIRABLE VEGETATION.

Contact of this product with desirable vegetation could result in unintended plant damage or destruction.

Shielded and Hooded Sprayers

This product, when applied at rates specified on this label using a shielded or hooded sprayer according to the directions described in this section, will control the weeds listed in the "ANNUAL WEEDS RATE SECTION" and "PERENNIAL WEEDS RATE SECTION" of this label.

A shielded sprayer directs the herbicide solution to the target weeds while protecting desirable vegetation from being contacted by the herbicide spray with an impervious material or shield. Keep shields on these sprayers adjusted to protect desirable vegetation. Air induction nozzles that have low drift potential must be used under shielded sprayers; droplet size must be very coarse to ultra coarse.

A hooded sprayer is a type of shielded sprayer where the spray pattern is fully enclosed, including the top, sides, front and back, thereby shielding the crop from the spray solution. Adjust the shields on these sprayers to protect desirable vegetation. **USE EXTREME CARE TO AVOID CONTACT OF THIS HERBICIDE WITH DESIRABLE VEGETATION.**

Hooded sprayers must be configured and operated in a manner that minimizes bouncing and avoids raising the hood up off the ground surface at any time. If the hood is raised, spray particles can escape and come into contact with the crop, causing damage to or destruction of the crop. Avoid operating this equipment on rough or sloping terrain where the spray hood is likely to rise up off the ground surface.

The following procedures will reduce the potential for crop injury when using a hooded sprayer:

- Spray hood must be operated on the ground or skimming across the ground surface.
- Leave at least an 8-inch untreated strip over the drill row. (For example, if the crop row width is 38 inches, make the maximum width of the spray hood 30 inches.)
- Operate at ground speeds of no greater than 5 miles per hour to avoid bouncing of the spray hood.
- Apply when wind speed is 10 miles per hour or less.
- Use low-drift air induction nozzles that provide uniform coverage within the treated area; droplet size must be very coarse to ultra coarse.

Crop injury can occur when foliage of treated weeds comes into direct contact with leaves of the crop. Do not apply this product when crop leaves are growing in direct contact with weeds to be treated. Droplets,

mist, foam or splatter of the herbicide solution settling onto desirable vegetation can result in discoloration, stunting or destruction.

8.3 Injection Systems

This product may be used in ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the concentrate of other products for use in injection systems.

8.4 Proper Spray System Equipment Cleanout

Minute quantities of dicamba can cause injury to sensitive crops (see the “**Sensitive Areas**” section of this label for a listing of sensitive crops).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal guidelines.

9.0 CROP ROTATIONAL RESTRICTIONS

The combined total application of this product on a site must not exceed 256 fluid ounces (2 pounds of dicamba acid) per acre per year.

The interval between application of this product and the planting of other crops in a crop rotation program is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified in this section could result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions at application rates of 96 fluid ounces of this product per acre or less: Follow the planting restrictions in the directions for use for Preplant application in the Crop Specific Information section of this label. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 32 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 32 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions at application rates of more than 96 fluid ounces and up to 256 fluid ounces of this product per acre: Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton east of the Rocky Mountains and before planting all other crops grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 64 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 64 fluid ounces of this product applied per acre west of the Mississippi River.

10.0 CROP SPECIFIC INFORMATION

NOTE: THIS SECTION PROVIDES DIRECTIONS FOR USE OF THIS PRODUCT THAT APPLY TO ALL CROPS LISTED IN THE SECTIONS THAT FOLLOW. SEE THE INDIVIDUAL CROP SECTIONS FOR SPECIFIC USE INSTRUCTIONS, PREHARVEST INTERVALS, AND ADDITIONAL PRECAUTIONS AND RESTRICTIONS.

TYPES OF APPLICATION: Fallow; Preplant; At-Planting; Preemergence; Hooded Sprayer in Row Middles; Spot Treatment, Shielded Sprayer in Row Middles; Post-Harvest

USE INSTRUCTIONS: Apply this product during fallow intervals preceding planting, prior to planting or transplanting, at-planting, or preemergence to annual and perennial crops listed on this label, except where specifically limited. Unless otherwise specified, apply this product as a broadcast application at the rates listed in Table 2 of this label in a minimum of 10 gallons of spray solution per acre. For best performance and reduced competition, apply this product while weeds are small (less than 4 inches).

Hooded sprayers capable of preventing all contact of the herbicide solution with the crop may be used in mulched or unmulched row middles after crop establishment. Refer to the APPLICATION EQUIPMENT AND TECHNIQUES section of this label for essential precautions regarding potential crop injury using selective application equipment. Crop injury is possible with these types of application and shall be the sole responsibility of the applicator.

TANK MIXTURES: This product may be tank-mixed with other herbicides to provide residual weed control, a broader weed control spectrum, an alternate mode of action or to increase the application rate of glyphosate. Always read and follow label directions for all products in the tank mixture. Use all products according to rates and timing specified on the label. Some tank-mix products have the potential to cause crop injury. Read the label for all products in the tank mixture prior to use to determine the potential for crop injury. Always predetermine the compatibility of tank-mix products together in the carrier by mixing small proportional quantities in advance. Mixing other products with this herbicide in the spray tank can cause incompatibility, antagonism, or a reduction in the efficacy of this product. Monsanto has not tested all product formulations for compatibility or performance in a tank-mix. To the extent consistent with applicable law, buyer and all users are responsible for any and all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not specifically identified on this label or on separate supplemental labeling or Fact Sheets for this product. See the MIXING section of this label for more information on tank mixtures.

RESTRICTIONS: Avoid contact of this herbicide with foliage, green shoots or stems, bark, exposed roots (including those emerging from plastic mulch), or fruit of crops, as severe crop injury or destruction could result. Transplant seedlings coming into contact with freshly treated vegetation could result in significant crop injury. When making preemergence applications, application must be made before crop emergence to avoid severe crop injury. Broadcast application of this product at emergence will result in injury or death of emerged seedlings. Apply before seed germination in coarse sandy soils to further minimize the risk of injury. For post-harvest and fallow applications, see the section **Crop Rotational Restrictions** for the recommended interval between application and planting to prevent crop injury.

In crops where spot treatment is allowed, do not treat more than 10 percent of the total field to be harvested. Crop sprayed in the treated area will be killed. Take care not to spray or allow spray to drift outside the target area in order to avoid unwanted crop destruction.

Do not harvest or feed treated vegetation for 8 weeks following broadcast postemergence application, unless otherwise specified.

Observe the maximum application rates stated throughout this label. Maximum application rates apply to the use of this product combined with the use of any and all other herbicides containing dicamba or glyphosate as the active ingredient, whether applied separately or as mixtures. Calculate the application rates (dicamba or glyphosate acid equivalents) and ensure that the total use of this and other dicamba or glyphosate-containing products does not exceed the stated maximum rate. See the PRODUCT INFORMATION section of this label for more information on Maximum Application Rates.

10.1 Between Crop Applications

TYPES OF APPLICATION: Postharvest, Fallow.

USE INSTRUCTIONS: Between 16 and 128 fluid ounces of this product per acre may be applied as a broadcast or spot treatment application to emerged and actively growing weeds after crop harvest (Postharvest) before a killing frost in the fall or on fallow cropland the following spring or summer.

Refer to the WEEDS AND RATES section of this label to determine application rates for specific weed species.

PRECAUTIONS: See the Crop Rotational Restrictions section for the recommended interval between application and planting to prevent crop injury.

10.2 Non-glyphosate Tolerant Corn

TYPES OF CORN: Field corn, Seed corn, and Silage corn

TYPES OF APPLICATION: Preplant, At Planting, Preemergence

USE INSTRUCTIONS: This product may be applied in no-till corn as well as in conventional or reduced tillage corn.

For applications in no-till systems, apply 64 fluid ounces of this product per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 32 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

For applications to conventional or reduced tillage systems, apply 64 fluid ounces of this product per treated acre to medium- or fine-textured soils that contain 2.5% organic matter or more. Do not apply to coarse-textured soils (sand, loamy sand, or sandy loam) or any soil with less than 2.5% organic matter.

RESTRICTIONS: This product is not registered for use with sweet corn. Do not apply this product with seed corn without first verifying with your local seed corn company (supplier) the selectivity of this product on your inbred line.

Direct contact of this product with corn seed must be avoided. If corn seeds are less than 1.5 inches below the soil surface, delay application until corn has emerged.

PRECAUTIONS: Pre-emergence application of this product does not require mechanical incorporation to become active. However, if less than adequate rainfall or sprinkler irrigation is received after application, a shallow mechanical incorporation can improve the performance of this product. Avoid tillage equipment (e.g., drags, harrows) which concentrates treated soil over seed furrow as seed damage could result.

Pre-emergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

10.3 Field Corn Hybrids with Roundup Ready 2 Technology

ROUNDUP READY CROPS CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO GLYPHOSATE, AN ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO CROPS THAT ARE NOT GLYPHOSATE TOLERANT. AVOID CONTACT OF THIS PRODUCT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A GLYPHOSATE-TOLERANCE GENE, AS SEVERE PLANT INJURY OR DESTRUCTION WILL RESULT. Information on Roundup Ready crops can be obtained from your seed supplier or Monsanto Company representative. Roundup Ready crops must be purchased from an authorized licensed seed supplier.

The directions for use in this section include all applications of this product that may be made onto a Field Corn with Roundup Ready 2 Technology during the complete cropping season. Do not combine these directions for use with the directions for use with non-glyphosate tolerant corn.

TYPES OF CORN: Field corn hybrids with Roundup Ready 2 Technology include Roundup Ready Corn 2 and field corn seed products displaying the Roundup Ready 2 Technology logo. The directions for use in this section refer only to FIELD CORN hybrids with Roundup Ready 2 Technology.

TYPES OF APPLICATION: Preplant, At Planting, Preemergence, Early Postemergence and Late Postemergence

USE INSTRUCTIONS: For preplant, at planting or preemergence applications in no-till systems, apply 64 fluid ounces of **[INSERT BRAND NAME]** per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 32 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

For preemergence applications to conventional systems or reduced tillage, apply 64 fluid ounces of this product per treated acre to medium- or fine-textured soils that contain 2.5% organic matter or more. Do not apply to coarse-textured soils (sand, loamy sand, or sandy loam) with less than 2.5% organic matter.

For early postemergence application to control weeds less than 4 inches tall regardless of tillage system, apply 64 fluid ounces of this product per treated acre. Apply between corn emergence and the 5-leaf stage or 8 inches tall, whichever occurs first. For corn grown on coarse-textured soils (sand, loamy sand, and sandy loam), reduce the rate to 32 fluid ounces per treated acre.

Late postemergence applications can be made if the sixth true leaf is emerging from the whorl, or the corn is greater than 8 inches tall. Apply 32 fluid ounces of this product per treated acre. Use drop nozzles for optimum spray coverage and weed control when corn plant height is 24 to 30 inches. When corn plants are 30 to 36 inches tall (free standing) or 15 days before tassel emergence, whichever comes first, apply this product using only ground application equipment fitted with drop nozzles aligned to avoid spraying into the whorls of the corn plants. Apply directed spray when corn leaves prevent proper spray coverage or if sensitive crops are growing nearby.

RESTRICTIONS: Sequential applications must be separated by 2 weeks or more and up to 2 applications of this product may be made during a growing season.

Do not apply this product when soybeans are growing nearby if any of these conditions exist:

- corn is more than 24 inches tall
- soybeans are more than 10 inches tall
- soybeans have begun to bloom

PRECAUTIONS: Applications of this product to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 - 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity.

10.4 Cotton

TYPES OF APPLICATION: Preplant

USE INSTRUCTIONS: For best performance, apply this product when weeds are less than 4 inches tall.

RATES: Apply up to 32 fluid ounces of **[INSERT BRAND NAME]** per acre to control emerged weeds prior to planting cotton in conventional or conservation tillage systems.

RESTRICTIONS: Following application of this product and a minimum accumulation of 1 inch of rainfall or overhead irrigation, a waiting interval of 21 days is required per 32 fluid ounces per acre or less. These intervals must be observed prior to planting cotton.

Do not apply preplant to cotton west of the Rockies.

Do not make a preplant application of this product to cotton in geographic areas with average annual rainfall less than 25 inches.

PRECAUTIONS: If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds of dicamba acid equivalent per acre (256 fluid ounces of this product per acre).

10.5 Grain Sorghum (Milo)

TYPES OF APPLICATION: Preplant

USE INSTRUCTIONS: This product may be applied preplant in sorghum to control many weeds and to reduce competition from established perennial weeds, as well as control their seedlings.

Up to 32 fluid ounces of this product may be applied per acre if applied at least 15 days before sorghum planting

RESTRICTIONS: Do not graze or feed treated sorghum forage or silage prior to mature grain stage.

Do not apply this product to sorghum grown for seed production.

10.6 Soybean

TYPES OF APPLICATION: Preplant, Preharvest, Spot Treatment.

USE INSTRUCTIONS: This product may be applied prior to planting soybeans or prior to soybean harvest after pods have set and lost all green color.

RATES: Apply 16 - 64 fluid ounces of this product per acre to control emerged broadleaf weeds prior to planting soybeans. Do not exceed 64 fluid ounces of this product per acre in a spring application prior to planting soybeans.

For preharvest application, apply 32 - 128 fluid ounces of this product per acre as a broadcast or spot treatment application to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for **[INSERT BRAND NAME]**. For seedling control, a follow-up program or other cultural practice could be instituted.

RESTRICTIONS: Following application of **[INSERT BRAND NAME]** and a minimum accumulation of 1 inch rainfall or overhead irrigation, a waiting interval of 14 days is required for 32 fluid ounces per acre or less, and 28 days for 64 fluid ounces per acre. These intervals must be observed prior to planting soybeans or crop injury may occur.

Do not make **[INSERT BRAND NAME]** preplant applications to soybeans in geographic areas with average annual rainfall less than 25 inches.

Do not harvest soybeans within 14 days of application of this product.

Do not use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better. To the extent consistent with applicable law, buyer and all users are responsible for any and all loss or damage in connection with the preharvest use of this product on soybean grown for seed.

Do not feed soybean fodder or hay following a preharvest application of [enter brand name].

Do not make preharvest applications in California.

10.7 Sugarcane

TYPES OF APPLICATION: Preplant, At Planting, Preemergence, Spot Treatment.

USE INSTRUCTIONS: This product may be applied in or around sugarcane fields, or in fields prior to the emergence of plant cane, or as a spot treatment for control of volunteer or diseased sugarcane.

Apply 32 to 128 fluid ounces of this product per acre for control or suppression of weeds. Apply the higher level of listed rate range when treating dense vegetative growth.

For control of volunteer or diseased sugarcane, apply a 1-percent solution of this product in water using a spray-to-wet technique. Best results are obtained on volunteer or diseased sugarcane with at least 7 new leaves.

RESTRICTIONS: Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Avoid contact of this herbicide with healthy sugarcane plants as severe damage or destruction can result. Do not feed or graze treated sugarcane foliage following application.

11.0 WEEDS AND RATES SECTION

Table 1. [INSERT BRAND NAME] will control or suppress the following weeds when used at rates described in **Table 2**.

ANNUALS

Alkanet
Amaranth, Palmer, Powell, Spiny
Ammannia, purple
Anoda, spurred
Aster, Slender
Barley
Barnyardgrass
Bassia, fivehook
Bedstraw, Catchweed
Beggarweed, Florida
Bittercress
Bluegrass, annual
Bluegrass, bulbous
Brome, downy
Brome, Japanese
Broomweed, Common
Browntop panicum
Buckwheat, Tartary, Wild
Buffalobur
Burclover, California
Burdock
Buttercup, Corn, Creeping, Roughseed, Western Field
Carolina geranium
Carpetweed
Catchfly, Nightflowering
Chamomile, Corn
Cheat
Chevil, Bur
Chickweed, Common
Clovers
Cockle, Corn, Cow, White

Cocklebur, Common
Copperleaf, Hophornbeam
Copperleaf, Virginia
Coreopsis, plains
Corn speedwell
Corn, volunteer
Cornflower (Bachelor Button)
Crabgrass
Croton, Tropic, Woolly
Crowfootgrass
Cutleaf evening primrose
Daisy, English
Devilsclaw (unicorn plant)
Dragonhead, American
Dwarfdandelion
Eastern mannagrass
Eclipta
Eveningprimrose, Cutleaf
Fall panicum
Falsedandelion
Falseflax, Smallseed
Falseflax, smallseed
Fiddleneck
Field pennycress
Filaree
Fleabane, Annual
Fleabane, hairy (*Conyza bonariensis*)
Fleabane, rough
Flixweed
Florida pusley
Foxtail, Carolina
Foxtail, green
Foxtail; giant, bristly, yellow
Fumitory
Goatgrass, jointed
Goosefoot, Nettleleaf
Goosegrass
Grain sorghum (milo)
Groundcherry
Groundsel; common, cressleaf
Hemp sesbania

Hempnettle
Henbit
Horseweed/ Maretail (*Conyza canadensis*)
Itchgrass
Jacobs-Ladder
Jimsonweed
Johnsongrass, seedling
Junglerice
Knawel (German Moss)
Knotweed
Knotweed, Prostrate
Kochia
Ladysthumb
Lambsquarters Common
Lettuce, Miners, Prickly
Little barley
London rocket
Mallow, Common, Venice
Mayweed
Morning glory, annual (*Ipomoea* spp.)
Mustard, Black, Blue, Tansy, Treacle, Tumble, Wild, Yellowtops
Nightshade, Black, Cutleaf
Nightshade; black, hairy
Oats
Pennycress, Field (Fanweed, Frenchweed, Stinkweed)
Pepperweed, Virginia (Peppergrass)
Pigweed species
Pigweed, Palmer
Pigweed, Prostrate, Redroot (Carelessweed), Rough, Smooth, Tumble
Pineappleweed
Poorjoe
Poppy, Red-horned
Prickly lettuce
Puncturevine
Purslane, Common
Pusley, Florida
Radish, Wild
Ragweed, Common, Giant (Buffaloweed), Lance-Leaf
Ragweed, giant
Red rice
Rocket, London, Yellow

Rubberweed, Bitter (Bitterweed)
Rye, volunteer/cereal
Ryegrass species
Salsify
Sandbur, field
Sandbur, longspine
Senna, Coffee
Sesbania, Hemp
Shattercane
Shepherd's-purse
Sicklepod
Sida, Prickly (Teaweed)
Signalgrass, broadleaf
Smartweed, Green, Pennsylvania
Smartweed, ladythumb
Sneezeweed, Bitter
Sowthistle, Annual, Spiny
Spanish Needles
Speedwell, purslane
Spikeweed, Common
Sprangletop
Spurge, Prostrate, Leafy
Spurry, Corn
Spurry, umbrella
Starbur, Bristly
Starwort, Little
Stinkgrass
Sumpweed, Rough
Sunflower, Common (Wild), Volunteer
Swinecress
Teaweed/ Prickly sida
Texas panicum
Thistle, Russian
Velvetleaf
Virginia pepperweed
Waterhemp, Common, Tall
Waterprimrose, Winged
Wheat (overwintered)
Wild oats
Wild proso millet
Witchgrass

Woolly cupgrass
Wormwood
Yellow rocket

BIENNIALS

Burdock, Common
Carrot, Wild (Queen Anne's Lace)
Cockle, White
Eveningprimrose, Common
Geranium, Carolina
Gromwell
Knapweed, Diffuse, Spotted
Mallow, Dwarf
Plantain, Bracted
Ragwort, Tansy
Starthistle, Yellow
Sweetclover
Teasel
Thistle, Bull, Milk, Musk, Plumeless

PERENNIALS

Alfalfa
Alligatorweed
Anise (fennel)
Artichoke, Jerusalem
Aster, Spiny, Whiteheath
Bahagrass
Bedstraw, Smooth
Bentgrass
Bermudagrass, water (knotgrass)
Bindweed, Field, Hedge
Bluegrass, Kentucky
Blueweed, Texas
Brackenfern
Bromegrass, smooth
Bursage, Woollyleaf¹ (Bur Ragweed, Povertyweed)
Buttercup, Tall
Campion, Bladder
Canarygrass, reed
Cattail
Chickweed, Field, Mouseear

Chicory
Clover; red or white
Clover, Hop
Cogongrass
Dallisgrass
Dandelion
Dock Broadleaf (Bitterdock), Curly
Dogbane, Hemp
Dogfennel (Cypressweed)
Fern, Bracken
Fescue, tall
Garlic, Wild
Goldenrod, Canada, Missouri
Goldenweed, Common
Guineagrass
Hawkweed
Henbane, Black
Horsenettle, Carolina
Horseradish
Iceplant
Ironweed
Jerusalem artichoke
Johnsongrass
Kikuyugrass
Knapweed, Black, Diffuse, Russian¹, Spotted
Lantana
Lespedeza
Milkweed, Climbing, Common, Honeyvine, Western Whorled
Muhly, wirestem
Mullein, common
Napiergrass
Nettle, Stinging
Nightshade, Silverleaf (White Horsenettle)
Nutsedge, purple or yellow
Onion, Wild
Orchardgrass
Pampasgrass
Paragrass
Phragmites
Plaintain, Broadleaf, Buckhorn
Poison hemlock

Pokeweed, common
Quackgrass
Ragweed, Western
Redvine
Reed, giant
Ryegrass, perennial
Sericia Lespedeza
Smartweed, Swamp
Smartweed, swamp
Snakeweed, Broom
Sorrel, Red (Sheep Sorrel)
Sowthistle, perennial
Spurge, Leafy
Spurge, leafy
Starthistle, yellow
Sundrops
Sweet potato, wild
Thistle, artichoke
Thistle, Canada
Thistle, Canada, Scotch
Timothy
Toadflex, Dalmatian
Torpedograss
Tropical Soda Apple
Trumpetcreeper (Buckvine)
Vaseygrass
Velvetgrass
Vetch
Waterhemlock, Spotted
Waterprimrose, Creeping
Wheatgrass, western
Woodsorrel, Creeping, Yellow
Wormwood, Absinth, Louisiana
Yankeeweed

WOODY SPECIES

Alder
Ash
Aspen
Basswood
Bearmat (Bearclover)

Beech
Birch
Blackberry¹
Blackgum¹
Bracken
Broom; French, Scotch
Buckwheat, California
Cascara
Catsclaw
Ceanothus
Cedar¹
Chamise
Cherry; bitter, black, pin
Chinquapin
Cottonwood
Coyote brush
Creosotebush¹
Cucumbertree
Dewberry¹
Dogwood¹
Elderberry
Elm
Eucalyptus
Florida holly (Brazilian Peppertree)
Gorse
Grape
Hasardia
Hawthorn (Thornapple)¹
Hazel
Hemlock
Hickory
Honeylocust
Honeysuckle
Hornbeam, American
Huckleberry
Huisache
Ivy, Poison
Kudzu
Locust, Black
Madrone re-sprouts
Manzanita

Maple, red
Maple, sugar
Mesquite
Monkey flower
Oak, northern
Oak, Poison
Oak, post
Oak, southern red
Oak; black, white
Olive, Russian
Persimmon, Eastern
Pine
Plum, Sand (Wild Plum)¹
Poison ivy/Poison oak
Poplar, yellow
Rabbitbrush
Redbud, eastern
Redcedar, Eastern¹
Rose, multiflora
Russian olive
Sage, black
Sage, white
Sagebrush, California
Sagebrush, Fringed¹
Salmonberry
Saltcedar
Sassafras
Serviceberry
Sourwood
Spicebush
Spruce
Sumac; poison, smooth, winged
Sweetgum¹
Swordfern
Sycamore
Tallowtree, Chinese
Tan oak re-sprouts
Tarbush
Thimbleberry
Tobacco, tree
Trumpetcreeper

Vine maple
 Virginia creeper
 Waxmyrtle, southern
 Willow
 Witchhazel
 Yaupon¹
 Yucca¹
¹Growth suppression only

Table 2. M1769 Premix Herbicide Application Rates for Control or Suppression by Weed Type and Growth Stage

Use rate limitations are given in **sections 9 and 10. Crop Specific Information**

Weed Type and Stage	Rate Per Acre (fluid ounces)	Weed Type and Stage	Rate Per Acre (fluid ounces)
<u>Annual</u> ¹		<u>Perennial</u>	
Small, actively growing	32 – 64	Top growth suppression	32 – 64
Established weed growth	64 – 96	Top growth control and root suppression	64 – 128
		Noted perennials (footnote 1 in Section 10.0).	128
		Other perennials ³	128
<u>Biennial</u>		<u>Woody Brush & Vines</u>	
Rosette diameter 1 – 3"	32 – 64	Top growth suppression	64 – 128
Rosette diameter 3" or more	64 – 128	Top growth control ^{2,3}	128
Bolting	128	Stems and stem suppression ³	128
¹ Rates below 32 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype. ² Species noted in Table 1 will require tank mixes for adequate control. ³ Do not broadcast apply more than 128 fluid ounces per acre in any single application. One sequential application of up to 128 fluid ounces may be required for adequate control. Use the higher level listed rate ranges when treating dense vegetative growth or perennial weeds with well established root growth.			

12.0 LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or

contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to glyphosate and dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

~~For in-crop (over-the-top) uses on Roundup Ready crops, crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.~~

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

Monsanto and Vine symbol, Roundup are trademarks of Monsanto Technology LLC.

All other trademarks are the property of their respective owners.

This product is protected by U.S. Patent [INSERT PATENT NUMBERS]. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No 524-616

In case of an emergency involving this product, call collect, day or night, (314) 694-4000.

Packed for:

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI, 63167 USA

© [YEAR]

MASTER LABEL FOR EPA REG. NO. 524-617

Primary Brand Name:

M1768 Herbicide

Alternate Brand Name:

Xtendimax™ With VaporGrip™ Technology

Table of Contents for Master Label

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** See each label part for more detailed table of contents **

I. MAIN LABEL FOR EPA REG. No. 524-617

[INSERT BRAND NAME]

Herbicide

Complete Directions for Use

EPA Reg. Number: 524-617

For weed control in asparagus, conservation reserve programs, corn, cotton, fallow croplands, general farmstead (noncropland), sorghum, grass grown for seed, hay, proso millet, pasture, rangeland, small grains, sod farms and farmstead turf, soybean, and sugarcane.

Not all products recommended on this label are registered in California. Check the registration status of each product in California before using.

Read the entire label before using this product.

Use only according to label instructions.

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

Net contents:

EPA Establishment No.:

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1.0 INGREDIENTS

ACTIVE INGREDIENT:

Diglycolamine salt of dicamba (3,6-dichloro-*o*-anisic acid)* 42.8%

OTHER INGREDIENTS: 57.2%

TOTAL: 100.0%

* contains 29.0%, 3,6-dichloro-*o*-anisic acid (2.9 pounds acid equivalent per U.S. gallon or 350 grams per liter).

2.0 IMPORTANT PHONE NUMBERS

1. FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE,
1-800-332-3111.
2. IN CASE OF AN EMERGENCY INVOLVING THIS HERBICIDE PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT,
(314)-694-4000.

IN CASE OF SPILL:

Steps to be taken in case material is released or spilled:

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

3.0 PRECAUTIONARY STATEMENTS

3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

Causes moderate eye irritation.. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID	
IF IN EYES	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15 to 20 minutes.• Call a poison control center or doctor for treatment advice.
	<ul style="list-style-type: none">•
<ul style="list-style-type: none">• Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

- You can call (314) 694-4000, collect day or night, for emergency medical treatment information.
- This product is identified as [INSERT BRAND NAME], EPA Registration No. 524-617.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are nitrile rubber and butyl rubber. If you want more options, follow the instructions for Category C on an EPA chemical-resistance category selection chart.

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks

See "Engineering Controls Statement" for additional requirements.

Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENT

When handlers use closed systems, or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "all mixers, loaders, applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

3.2 Environmental Hazards

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Apply this product only as directed on the label.

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

GROUND AND SURFACE WATER PROTECTION

Point source contamination - To prevent point source contamination, do not mix or load this pesticide product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Do not apply pesticide product within 50 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 50 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the

pad. The pad capacity must be maintained at 110% that of the largest pesticide container or application equipment used on the pad and have sufficient capacity to contain all product spills, equipment or container leaks, equipment wash waters, and rainwater that may fall on the pad. The containment capacity does not apply to vehicles delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Care must be taken when using this product to prevent: a) back siphoning into wells, b) spills or c) improper disposal of excess pesticide, spray mixtures or rinsates. Check valves or anti-siphoning devices must be used on all mixing equipment.

Movement by surface runoff or through soil - Do not apply under conditions which favor runoff. Do not apply to impervious substrates such as paved or highly compacted surfaces in areas with high potential for ground water contamination. Ground water contamination may occur in areas where soils are permeable or coarse and ground water is near the surface. Do not apply to soils classified as sand with less than 3% organic matter and where ground water depth is shallow. To minimize the possibility of ground water contamination, carefully follow application rate recommendations as affected by soil type in the Crop Specific Information section of this label.

Movement by water erosion of treated soil - Do not apply or incorporate this product through any type of irrigation equipment nor by flood or furrow irrigation. Ensure treated areas have received at least one-half inch rainfall (or irrigation) before using tailwater for subsequent irrigation of other fields.

ENDANGERED SPECIES CONCERNS

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto supplemental labeling. Supplemental labeling can be obtained from your Authorized Monsanto Retailer or Monsanto Company Representative. This labeling must be in the user's possession during application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as, plants, soil, or water is:

- Coveralls worn over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant headgear for overhead exposure
- Protective eyewear

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow people (or pets) to enter the treated area until sprays have dried. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Do not enter or allow other people or pets to enter until sprays have dried.

4.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage and disposal.

Open dumping is prohibited. This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes.

PESTICIDE STORAGE

Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material. Spillage or leakage should be contained and absorbed with clay granules, sawdust, or equivalent material for disposal.

Store in original container in a well-ventilated and away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Avoid cross-contamination with other pesticides. Keep container closed to prevent spills and contamination.

PESTICIDE DISPOSAL

To avoid wastes, use all material in this container, including rinsate, by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable federal, state and local regulations and procedures.

[Alternate PESTICIDE DISPOSAL statement for transport vehicles only: To avoid wastes, empty as much product from this transport vehicle as possible for repackaging or use in accordance with label directions. If wastes cannot be avoided, offer remaining product or rinsate to a waste disposal facility or pesticide disposal program. All disposal must be in accordance with applicable federal, state and local regulations and procedures.]

CONTAINER HANDLING AND DISPOSAL: *[Optional label statement if applicable: See container label for container handling and disposal instructions and refilling limitations.]*

[CONTAINER HANDLING AND DISPOSAL STATEMENTS AND REFILLING LIMITATIONS FOR CONTAINER LABELS]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID CONTAINERS OF LESS THAN 1-GALLON CAPACITY]

Nonrefillable container. Do not reuse or refill this container.

[Alternate container statement: Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10

seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[Alternate container disposal statement: Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 2.5-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 1-GALLON BUT EQUAL TO OR LESS THAN 5-GALLON CAPACITY]

Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.

[Alternate container statement: Nonrefillable container. Do not reuse or refill this container.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. *[Optional container disposal statement: To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)].* If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[Alternate container disposal statement: Then offer this container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR NONREFILLABLE RIGID PLASTIC 30-GALLON CONTAINERS AND OTHER NONREFILLABLE CONTAINERS OF GREATER THAN 5-GALLON CAPACITY]

Nonrefillable container. Do not reuse or refill this container.

[*Alternate container statement:* Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state.]

Triple rinse or pressure rinse (or equivalent) this container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once properly rinsed, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. [*Alternate container disposal statement:* To find the nearest site, contact your chemical dealer or Monsanto at 1-800-ROUNDUP (1-800-768-6387)]. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

[*Alternate container disposal statement:* Then offer the container for recycling, if available. If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling Contact: 1-800-ROUNDUP (1-800-768-6387)]

[*CONTAINER HANDLING AND DISPOSAL STATEMENT AND REFILLING LIMITATION FOR ALL REFILLABLE CONTAINERS, EXCEPT TRANSPORT VEHICLES*]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning this container before refilling is the responsibility of the refiller. Cleaning this container before final disposal is the responsibility of the person disposing of the container.

To clean this container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer this container for recycling, if available.

[*Optional container disposal statement:* To obtain information about recycling refillable containers, contact Monsanto Company at 1-800-ROUNDUP (1-800-768-6387)]

[*Optional container label statement:* Return Properly Rinsed Container to Monsanto for Recycling, Call 1-800-ROUNDUP (1-800-768-6387)]

[CONTAINER HANDLING AND DISPOSAL STATEMENT FOR ALL TRANSPORT VEHICLES AS DEFINED IN 40 CFR 156.3]

THIS LABEL FOR USE WITH TRANSPORT VEHICLES ONLY

Emptied container retains vapor and product residue. Observe all precautions stated on this label until the container is cleaned, reconditioned or destroyed. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, and worn-out threads and closures. Clean thoroughly before reuse for transportation of a material of different composition or before retiring this transport vehicle from service.

[Alternative label statement: NET CONTENTS: See Bill of Lading]

[Alternative label statement: LOT: See Bill of Lading]

[Alternative label statement: For Net Contents and Lot Number, see Bill of Lading]

5.0 PRODUCT INFORMATION

Do not apply by air. This product is a water-soluble formulation intended for control and suppression of many annual, biennials, and perennial broadleaf weeds, as well as woody brush and vines listed in the WEEDS CONTROLLED section of this label. This product may be used for control of these weeds in asparagus, corn, cotton, conservation reserve programs, fallow cropland, grass grown for seed, hay, proso millet, pasture, rangeland, general farmstead (noncropland), small grains, sod farms and farmstead turf, sorghum, soybean, and sugarcane.

M1768 Herbicide is a postemergence, systemic herbicide which can have moderate residual control on small seeded broadleaf weeds, including waterhemp, lambsquarters and Palmer pigweed, depending on rainfall and soil type.

Refer to the CROP-SPECIFIC INFORMATION section for application timing and other crop-specific details.

[INSERT BRAND NAME] is readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. [INSERT BRAND NAME] interferes with the plant's growth hormones (auxins) resulting in death of many broadleaf weeds.

[Optional label text: Do not add [Optional label text: surfactants, additives containing surfactants,] buffering agents or pH adjusting agents to the spray solution when [INSERT BRAND NAME] is the only pesticide being applied unless otherwise directed. See the MIXING section of this label for instructions regarding other additives.]

6.0 WEED RESISTANCE MANAGEMENT

GROUP	4	HERBICIDE
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Dicamba mimics auxin (a plant hormone) resulting in a hormone imbalance in susceptible plants that interferes with normal cell division, cell enlargement, and protein synthesis. Dicamba active ingredient is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population can contain plants naturally resistant to Group 4 herbicides. Weed species resistant to Group 4 herbicides can be effectively managed utilizing another herbicide from a different Group, or by using other cultural or mechanical practices..

6.1 Weed Management Practices

To minimize the occurrence of dicamba-resistant biotypes, observe the following weed management practices:

- Scout your fields before and after herbicide application.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Incorporate other herbicides (e.g., a selective and/or a residual herbicide) and cultural practices (e.g., tillage or crop rotation) as part of your weed control system, where appropriate.
- Use the full recommended herbicide rate and proper application timing for the hardest to control weed species present in the field. Avoid tank mixtures with other herbicides that reduce the efficacy of this product (through antagonism), or with ones that encourage application rates of this product below those specified on this label.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Clean equipment before moving from field to field to minimize the spread of weed seed or plant parts.
- Use new commercial seed that is as free of weed seed as possible.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Report any incidence of repeated non-performance of this product on a particular weed to your Monsanto representative, local retailer, or county extension agent.

6.2 Management of Dicamba-Resistant Biotypes

Appropriate testing is critical in order to determine if a weed is resistant to dicamba. Contact your Monsanto representative to determine if resistance in any particular weed biotype has been confirmed in your area, or visit on the Internet www.weedresistancemanagement.com or www.weedscience.org.

Since the occurrence of new dicamba-resistant weeds cannot be determined until after product use and scientific confirmation, Monsanto Company is not responsible for any losses that result from the failure of this product to control dicamba-resistant weed biotypes.

The following good agronomic practices can reduce the spread of confirmed dicamba-resistant biotypes:

- If a naturally occurring resistant biotype is present in your field, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices (e.g., crop rotation or tillage) can also be used as appropriate.
- Scout treated fields after herbicide application and control weed escapes, including resistant biotypes, before they set seed.
- Thoroughly clean equipment before leaving fields known to contain resistant biotypes.

7.0 MIXING

7.1 Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

- For 20 gallons per acre spray volume, use 3.3 cups (800 mL) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.
- Add components in the sequence indicated in the Mixing Order section below using 2 teaspoons for each pound or 1 teaspoon for each pint of labeled use rate per acre.
- Cap the jar and invert 10 cycles between component additions.
- When the components have all been added to the jar, let the solution stand for 15 minutes.
- Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface; fine particles that precipitate to the bottom; or thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, then do not mix the ingredients in the same tank.

7.2 Mixing Order

1. Water - Begin by agitating a thoroughly clean sprayer tank three-quarters full of clean water.
2. Agitation - Maintain constant agitation throughout mixing and application.
3. Inductor - If an inductor is used, rinse it thoroughly after each component has been added.
4. Products in PVA bags - Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
5. Water-dispersible products (dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)
6. Water-soluble products (such as [INSERT BRAND NAME])
7. Emulsifiable concentrates (such as oil concentrate when applicable)
8. Water-soluble additives (when applicable)
9. Remaining quantity of water.

Maintain constant agitation during application

7.3 Tank Mixtures

This product may be tank-mixed with other registered herbicides to provide longer residual weed control, a broader weed control spectrum or an alternate mode of action. Always read and follow label directions for all products in the tank mixture.

Some tank-mix products have the potential to cause crop injury under certain conditions, at certain growth stages and/or under other circumstances. Read the label for all products to be used in the tank mixture prior to use to determine the potential for crop injury.

Tank mixtures with other herbicides, insecticides, fungicides, miticides, additives, micronutrients or foliar fertilizers could result in reduced weed control, physical incompatibility or crop injury. Monsanto has not tested all tank-mix product formulations for compatibility, antagonism or reduction in product performance. Unless prohibited by law, buyer and all users are solely responsible for any and all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly specified on this label or in separate supplemental labeling or Fact Sheets published for this product.

Refer to the tank mix product labels to confirm that the respective tank mix products are registered for the specific crop use. Refer to all individual product labels, supplemental labeling and Fact Sheets for all products in the tank mixture, and observe all precautions and limitations on the label, including application timing restrictions, soil restrictions, minimum re-cropping intervals and rotational guidelines. Use according to the most restrictive precautionary statements for each product in the tank mixture. See the CROP-SPECIFIC INFORMATION section for more details.

Always predetermine the compatibility of all tank-mix products together in the carrier by mixing small proportional quantities in advance.

Apply this product or tank mixtures with this product at a minimum spray volume rate of 10 GPA.

[Optional label statement: The herbicide products listed may be applied with **M1768 Herbicide** according to the specific tank mixing instructions in this label and respective product labels:

Accent[®] (nicosulfuron)
Acquire[™] (glyphosate)
Ally[®] (metsulfuron-methyl)
Amber[®] (triasulfuron)
Asulox[®] (asulam)
Atrazine
Authority[®] Assist (sulfentrazone + imazethapyr)

Authority[®] XL (sulfentrazone + chlorimuron ethyl)
 Axiom[™] (flufenacet + metribuzin)
 Banvel[®] SGF (dicamba)
 Basagran[®] (bentazon)
 Beacon[®] (primisulfuron-methyl)
 Bicep II Magnum[®] (s-metolachlor + atrazine)
 Bronate[®] (bromoxynil + MCPA)
 Bronco[®] (alachlor + glyphosate)
 Buctril[®] (bromoxynil)
 Bullet[®] (alachlor + atrazine)
 Canvas[®] (thifensulfuron + tribenuron + metsulfuron)
 Caparol[®] (prometryn)
 Crossbow[®] (2,4-D + triclopyr)
 Curtail[®] (clopyralid + 2,4-D)
 Cyclone[®] (paraquat)
 Dakota[®] (fenoxaprop + MCPA)
 Degree[™] (acetochlor)
 Degree Xtra[™] (acetochlor + atrazine)
 DoublePlay[®] (acetochlor + EPTC)
 Dual Magnum[™] (s-metolachlor)
 Dual II Magnum[®] (s-metolachlor + atrazine)
 Eradicane[®] (EPTC)
 Evik[®] (ametryn)
 Exceed[®] (primisulfuron + prosulfuron)
 Express[®] (thifensulfuron + tribenuron-methyl)
 Extrazine[®] II (cyanazine + atrazine)
 Fallow Master[®] (glyphosate + dicamba)
 Field Master[™] (acetochlor + atrazine + glyphosate)
 Fierce[®] (flumioxazin + pyroxasulfone)
 Finesse[®] (chlorsulfuron + metsulfuron-methyl)
 Frontier[®] (dimethenamid)
 FulTime[™] (acetochlor + atrazine)
 Gangster[®] (flumioxazin + cloransulam-methyl)
 Garlon[®] (triclopyr)
 Glean[®] (chlorsulfuron)
 Gramoxone[®] Extra (paraquat)
 Guardsman[®] (dimethenamid + atrazine)
 Harmony[®] Extra (thifensulfuron + tribenuron-methyl)
 Harness[®] (acetochlor)
 Harness[®] Xtra (acetochlor + atrazine)
 Hornet[™] (flumetsalam + clopyralid)
 Karmex[®] (diuron)
 Kerb[®] (pronamide)
 Laddok[®] S-12 (bentazon + atrazine)
 Landmaster[®] BW (glyphosate + 2,4-D)
 Lariat[®] (alachlor + atrazine)
 Lasso[®] (alachlor)
 Lexone[®] (metribuzin)
 Liberty[®] (glufosinate)
 Lightning[®] (imazethapyr + imazapyr)
 Marksman[®] (dicamba + atrazine)
 MCPA
 Outlook[™] (dimethenamid-P)
 Paramount[®] (quinclorac)
 Partner[®] (alachlor)
 Peak[®] (prosulfuron)

Permit[®] (halosulfuron)
Princep[®] (simazine)
Prowl[®] (pendimethalin)
Python[™] (flumetsulam)
Ramrod[®] (propachlor)
Roundup WeatherMAX[®] (glyphosate)
Roundup PowerMAX[®] (glyphosate)
RT 3[®] (glyphosate)
Sencor[®] (metribuzin)
Spirit[™] (primisulfuron + prosulfuron)
Stinger[®] (clopyralid)
Surpass[®] (acetochlor)
Sutan[®] + (butylate)
Tiller[®] (fenoxaprop-ethyl + MCPA + 2,4-D)
TopNotch[™] (acetochlor)
Tordon[®] 22K (picloram)
Touchdown[®] (sulfosate)
Tough[®] (pyridate)
Valor[®] (flumioxazin)
2,4-D

This product may also be used in tank mixtures with foliar applied insecticides including synthetic pyrethroids such as Ambush[®], Asana[®], Pounce[®] and Warrior[®] insecticides or with the carbamate insecticide Furadan[®]. Do not apply in tank mixtures with Lorsban[®] insecticide.]

7.4 Surfactants and Adjuvants

Although not always required, surfactant may be added to spray solutions of this product.

A quality nonionic surfactant (NIS) of at least 70% active may be added to the spray solution at 0.25 percent surfactant concentration (1 quart per 100 gallons of spray solution). Read and carefully observe all caution statements and other information on the surfactant label.

Do not add acidifying buffering agents, acidic pH adjusting agents or adjuvants other than agriculturally approved NIS to the spray solution.

Instead of NIS, oil concentrate surfactants such as crop oil concentrate (COC), high surfactant oil concentrate (HSOC) or methylated seed oil (MSO) may be used at 1 to 2 quarts/100 gallons (0.5% to 1% v/v), but at least 1 pint/acre. Do not use crop oil concentrates (COC) or methylated seed oils (MSO) as adjuvants when this product is applied with a Roundup Brand Agricultural Herbicide. When **M1768 Herbicide** is used with another herbicide that requires the use of a COC or MSO adjuvant follow the label instructions of that product.

A crop oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:

- be nonphytotoxic,
- contain only EPA-exempt ingredients,
- provide good mixing quality in the jar test, and
- be successful in local experience.]

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils.

[*Optional label statement:* Adjuvants containing crop oil concentrates may be used in preplant, pre-emergence, and preharvest application, as well as in pastures and noncropland. Do not use crop oil

concentrate for postemergence in-crop applications unless specifically allowed in section 10 Crop-Specific Information of this label or in separate supplemental labeling.]

7.5 Drift Reduction Additives

Nozzle selection is one of the most important parameters for drift reduction. A drift reduction additive may be used with this product to further reduce fine droplets. Not all drift reduction additives are compatible with every nozzle type and pesticide / adjuvant combination. Check with the additive manufacturer to insure that the drift additive will work properly with the spray nozzle, spray pressure and your specific spray solution.

Read and carefully observe all precautions, limitations and all other information on the product label.

8.0 APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT .

M1768 Herbicide can be applied to actively growing weeds as broadcast, band, or spot spray applications using water or sprayable fertilizer as a carrier. Control weeds early when they are relatively small (less than 4 inches). Timely application to small weeds early in the season will improve control and reduce weed competition. Refer to table 1 for general **[INSERT BRAND NAME]** application rates for control or suppression by weed type and growth stage. For crop-specific application timing and other details, refer to the CROP-SPECIFIC INFORMATION section of this label.

APPLY THIS PRODUCT USING PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING THE DESIRED VOLUMES.

CULTIVATION Do not cultivate within 7 days after applying this product.

8.1 Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed to ensure application accuracy from ground application onto agricultural field crops.

Controlling Droplet Size

The most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use only spray nozzles that produce very coarse to ultra coarse spray droplets and minimal amounts of fine spray droplets as defined by the American Society of Agricultural and Biological Engineers (ASABE S-572.1). Do not use conventional flat fan nozzles that produce an excessive amount of driftable fines. Common examples are the TeeJet® XR and Turbo Teejet.

Check nozzle manufacturer's recommendations to determine the proper droplet spectrum, operating pressure, boom height, nozzle spacing and ground speed that will deliver the desired droplet size and spray volume of at least 10 GPA for the nozzle selected that will produce a very coarse to ultra coarse spray droplet.

- **Spray Pressure.** Adjust pressure for selected nozzles according to the nozzle manufacturer to maintain very coarse to ultra coarse droplets. Use sufficient spray pressure with air induction nozzles to ensure a good spray pattern, while maintaining very coarse to ultra coarse droplets; use at least 30 psi to ensure proper pattern overlap. Confirm that sprayer rate controller hardware

(if so equipped) does not increase pressure above the desired range. Calibrate the flow rate for the selected nozzles on the equipment used to apply this product.

- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets along with a lower percentage of driftable fines.
- **Equipment Ground Speed.** Select a ground speed less than 15 miles per hour that will deliver the desired spray volume while maintaining the desired spray pressure. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing (not more than 24 inches above target pest or crop canopy). Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. For example, the 110° series nozzle is preferred as it allows for the lowest boom height (maximum of 20 inches above the target pest or crop canopy). Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will dissipate with increased winds (above 3 miles per hour) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- If the wind speed is 3 miles per hour or less and fog is present, indicating a temperature inversion, do not apply this product.
 - If fog is not present, conduct a smoke test. Smoke that moves upward confirms there is no inversion present whereas smoke that layers and moves laterally in a concentrated cloud indicates a temperature inversion exists. Do not apply this product during a temperature inversion. Wait until the temperature has risen at least 3 degrees Fahrenheit from the morning low temperature or the wind speed is greater than 3 miles per hour to ensure that any inversion has lifted.
- Do not spray this product when the wind is blowing in the direction of a sensitive area at a wind speed greater than 10 miles per hour.
- For wind speed and direction restrictions for application of this product see the table below:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply this product if temperature inversion exists
3-10 mph	Optimum conditions for application of this product.
>10 – 15 mph	Do not apply this product when wind is blowing toward sensitive areas
> 15 mph	Do not apply this product

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Sensitive areas include known habitat for threatened or endangered species, non-target sensitive crop, residential areas, and greenhouses.

Applicators are required to ensure that they are aware of the proximity to sensitive areas, to avoid potential adverse effects from off-target movement of [INSERT BRAND NAME]. The applicator must survey the application site for neighboring sensitive areas prior to application. The applicator also should consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label, could result in severe injury or destruction to desirable sensitive crops and trees, particularly beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potatoes, soybeans, sunflowers, tobacco, tomatoes, and other broadleaf plants when contacting their roots, stems or foliage.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision.

8.2 Ground Application (Banding)

When applying **M1768 Herbicide** by banding, determine the amount of herbicide and water volume needed using the following formula:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast rate per acre} = \text{Banding herbicide rate per acre}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \text{Broadcast volume per acre} = \text{Banding water volume per acre}$$

8.3 Ground Application (Broadcast)

Water Volume: Use a minimum of 10 gallons of spray solution per broadcast acre for optimal performance. Use the higher spray volume (20 gallons per acre) when treating dense or tall vegetation.

Application Equipment: Select nozzles designed to produce minimal amounts of fine spray particles. Spray with nozzles as close to the weeds as practical for good weed coverage.

8.4 Ground Application (Wipers)

M1768 Herbicide may be applied through wiper application equipment to control or suppress actively growing broadleaf weeds, brush and vines. Use a solution containing 1 part **M1768 Herbicide** to 1 part water. Do not apply greater than 1 lb dicamba acid equivalent (1 quart of this product) per acre per application. Do not contact desirable vegetation with herbicide solution. Wiper application may be made to crops (including pastures) and non-cropland areas described in this label with the exception of cotton, sorghum, and soybean.

Table 1. M1768 Herbicide Application Rates for Control or Suppression by Weed Type and Growth Stage

Use rate limitations are given in sections 9 (RESTRICTIONS) and 10 (CROP-SPECIFIC INFORMATION)

Weed Type and Stage	Rate Per Acre	Weed Type and Stage	Rate Per Acre
Annual¹		Perennial	
Small, actively growing	11 – 22 fluid ounces	Top growth suppression	11 – 22 fluid ounces
Established weed growth	22 – 33 fluid ounces	Top growth control and root suppression	22 – 44 fluid ounces
		Noted perennials (footnote 1 in Section 10.0).	44 fluid ounces
		Other perennials ³	44 fluid ounces
Biennial		Woody Brush & Vines	
Rosette diameter 1 – 3"	11 – 22 fluid ounces	Top growth suppression	22 – 44 fluid ounces
Rosette diameter 3" or more	22 – 44 fluid ounces	Top growth control ^{2,3}	44 fluid ounces
Bolting	44 fluid ounces	Stems and stem suppression ³	44 fluid ounces
¹ Rates below 11 fluid ounces per acre may provide control or suppression but should typically be applied with other herbicides that are effective on the same species and biotype. ² Species noted in Table 1 will require tank mixes for adequate control. ³ Do not broadcast apply more than 44 fluid ounces per acre in any single application. One sequential application of up to 44 fluid ounces may be required for adequate control. Use the higher level listed rate ranges when treating dense vegetative growth or perennial weeds with well established root growth.			

8.5 Proper Spray System Equipment Cleanout

Minute quantities of dicamba can cause injury to sensitive crops (see the "**Sensitive Areas**" section of this label for a listing of sensitive crops).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.

8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal guidelines.

9.0 RESTRICTIONS

Maximum Application Rates: The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredients dicamba, whether applied separately or as a tank mixture, on a basis of total pounds of dicamba (acid equivalents) per acre. If more than one dicamba-containing product is applied to the same site within the same year, you must ensure that the total use of dicamba (pounds acid equivalents) does not exceed the maximum allowed. See the INGREDIENTS section of this label for necessary product information.

Maximum seasonal use rate: Refer to Table 2. Crop-Specific Restrictions for crop-specific maximum seasonal use rates. Do not exceed 88 fluid ounces of **M1768 Herbicide** (2 pounds acid equivalent) per acre, per year.

Preharvest Interval (PHI): Refer to the CROP-SPECIFIC INFORMATION section for preharvest intervals.

Restricted Entry Interval (REI): 24 hours

Crop Rotational Restrictions

The interval between application of this product and the planting of other crops in a crop rotation program is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified in this section could result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions at application rates of 33 fluid ounces of this product per acre or less: Follow the planting restrictions in the directions for use for Preplant application in the Crop Specific Information section of this label. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions at application rates of more than 33 fluid ounces and up to 88 fluid ounces of this product per acre: Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton east of the Rocky Mountains and before planting all other crops grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

Rainfast period: Rainfall or irrigation occurring within 4 hours after postemergence applications may reduce the effectiveness of this product.

Stress: Do not apply to crops under stress due to lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, insects, or widely fluctuating temperatures as injury may result.

Do not apply through any type of irrigation equipment. Do not treat irrigation ditches or water used for crop irrigation or domestic purposes.

Table 2. Crop-Specific Restrictions¹

Crop	Maximum Rate Per Acre Per Application (fl oz)	Maximum In-Crop Rate Per Acre Per Season (fl oz)	Livestock Grazing or Feeding
Asparagus	22	22	Yes
Barley; Fall Spring	11 11	16.5 15	Yes
Conservation Reserve Program (CRP)	44	88	Yes
Corn	22	33	Yes ²
Cotton	11	11	Yes
Fallow Ground	44	88	Yes
Grass grown for seed	44	88	Yes
Oats	5.5	5.5	Yes
Pastureland	44	44	Yes
Proso Millet	5.5	5.5	Yes
Small grains grown for grass, forage, fodder, hay and/or pasture	22	22	Yes
Sorghum	11	22	Yes

Soybean	44	44	Yes
Sugarcane	44	88	Yes
Triticale	5.5	5.5	Yes
Sod farms and farmstead turf	44	44	Yes
Wheat	11	22	Yes
¹ Refer to section 10. CROP-SPECIFIC INFORMATION for more details.			
² Once the crop reaches the ensilage (rnilk) stage or later in maturity			

10.0 CROP-SPECIFIC INFORMATION

10.1 Asparagus

Apply **M1768 Herbicide** to emerged and actively growing weeds in 40 - 60 gallons of diluted spray per treated acre immediately after cutting the field, but at least 24 hours before the next cutting. Multiple applications may be made per growing season.

If spray contacts emerged spears, crooking (twisting) of some spears may result. If such crooking occurs, discard affected spears.

Rates: Apply 11-22 fluid ounces of **M1768 Herbicide** to control annual sowthistle, black mustard, Canada and Russian thistle, and redroot pigweed (carelessweed).

Apply 22 fluid ounces of **M1768 Herbicide** to control common chickweed, field bindweed, nettleleaf goosefoot, and wild radish. Up to 2 applications may be made per growing season. Do not exceed a total of 22 fluid ounces of **M1768 Herbicide** per treated acre, per crop year.

Do not harvest prior to 24 hours after treatment.

Do not use in the Coachella Valley of California.

Asparagus Tank Mixes

Apply 11-22 fluid ounces of **M1768 Herbicide** with glyphosate or 2,4-D to improve control of Canada thistle and field bindweed.

10.2 Between Crop Applications

Preplant Directions (Postharvest, Fallow, Crop Stubble, Set-Aside) for Broadleaf Weed Control:

M1768 Herbicide can be applied either postharvest in the fall, spring, or summer during the fallow period or to crop stubble/set-aside acres. Apply **M1768 Herbicide** as a broadcast or spot treatment to emerged and actively growing weeds after crop harvest (postharvest) and before a killing frost or in the fallow cropland or crop stubble the following spring or summer.

See the RESTRICTIONS section for the recommended interval between application and planting to prevent crop injury.

Rates and Timings:

Apply 5.5 – 44 fluid ounces of **M1768 Herbicide** per acre. Refer to **Table 1** to determine use rates for specific targeted weed species. For best performance, apply **M1768 Herbicide** when annual weeds are less than 4" tall, when biennial weeds are in the rosette stage and to perennial weed regrowth in late summer or fall following a mowing or tillage treatment. The most effective control of upright perennial broadleaf weeds such as Canada thistle and Jerusalem artichoke occurs if **M1768 Herbicide** is applied when the majority of weeds have at least 4 - 6" of regrowth or for weeds such as field bindweed and hedge bindweed that are in or beyond the full bloom stage.

Avoid disturbing treated areas following application. Treatments may not kill weeds that develop from seed or underground plant parts such as rhizomes or bulblets, after the effective period for **M1768 Herbicide**. For seedling control, a follow-up program or other cultural practices could be instituted. For small grain in-crop uses of **M1768 Herbicide**, refer to the small grain section for details.

Between Crop Tank Mixes

In tank mixes with one or more of the following herbicides, apply 5.5 - 22 fluid ounces of **M1768 Herbicide** per acre for control of annual weeds, or 22 - 44 fluid ounces of **M1768 Herbicide** per acre for control of biennial and perennial weeds:

Acquire™	RT 3® (glyphosate)
Ally®	Gramoxone® Extra
Amber®	Kerb®
Atrazine	Landmaster® BW
Curtail®	Paramount®
Cyclone®	Sencor®
Fallow Master®	Tordon® 22K
Finesse®	Touchdown®
Roundup WeatherMAX® (glyphosate)	2,4-D
Roundup PowerMAX® (glyphosate)	

10.3 Corn (Field, Pop, Seed, And Silage)

Direct contact of **M1768 Herbicide** with corn seed must be avoided. If corn seeds are less than 1.5" inches below the surface, delay application until corn has emerged.

Applications of **M1768 Herbicide** to corn during periods of rapid growth may result in temporary leaning. Corn will usually become erect within 3 to 7 days. Cultivation should be delayed until after corn is growing normally to avoid breakage.

Corn may be harvested or grazed for feed once the crop has reached the ensilage (milk) stage or later in maturity.

Up to 2 applications of **M1768 Herbicide** may be made during a growing season. Sequential applications must be separated by 2 weeks or more.

Do not apply **M1768 Herbicide** to seed corn or popcorn without first verifying with your local seed corn company (supplier) the selectivity of **M1768 Herbicide** on your inbred line or variety of popcorn. This precaution will help avoid potential injury of sensitive varieties.

Avoid using crop oil concentrates after crop emergence as crop injury may result. Use crop oil concentrates only in dry conditions when corn is less than 5" tall and when applying **M1768 Herbicide** alone or tank mixed with atrazine.

Use of sprayable fluid fertilizer as the carrier is not recommended for applications of **M1768 Herbicide** made after corn emergence.

M1768 Herbicide is not registered for use on sweet corn.

Preplant and Preemergence Application in No-Tillage Corn:

Rates: Apply 22 fluid ounces of **M1768 Herbicide** per acre on medium- or fine-textured soils containing 2.5% or greater organic matter. Use 11 fluid ounces per acre on coarse soils (sand, loamy sand, and sandy loam) or medium- and fine-textured soils with less than 2.5% organic matter.

Timing: **M1768 Herbicide** can be applied to emerging weeds before, during, or after planting a corn crop. When planting into a legume sod (e.g., alfalfa or clover), apply **M1768 Herbicide** after 4 - 6" of regrowth has occurred.

Preemergence Application in Conventional or Reduced Tillage Corn:

Rates: Apply 22 fluid ounces of **M1768 Herbicide** per treated acre on medium- or fine-textured soils containing 2.5% organic matter or more. Do not apply to coarse textured soils (sand, loamy sand, or sandy loam) of any soil with less than 2.5% organic matter until after corn emergence (See Early Postemergence uses below).

Timing: **M1768 Herbicide** may be applied after planting and prior to corn emergence. Pre-emergence application of **M1768 Herbicide** does not require mechanical incorporation to become active. A shallow mechanical incorporation is recommended if application is not followed by adequate rainfall or sprinkler irrigation. Avoid tillage equipment (e.g., drags, harrows) which concentrates treated soil over seed furrow as seed damage could result.

Preemergence control of cocklebur, jimsonweed, and velvetleaf may be reduced if conditions such as low temperature or lack of soil moisture cause delayed or deep germination of weeds.

Early Postemergence Application in All Tillage Systems:

Rates: Apply 22 fluid ounces of **M1768 Herbicide** per treated acre. Reduce the rate to 11 fluid ounces per treated acre if corn is growing on coarse textured soils (sand, loamy sand, and sandy loam).

Timing: Apply between corn emergence and the 5-leaf stage or 8" tall, whichever occurs first. Refer to **Late Postemergence Applications** if the sixth true leaf is emerging from whorl or corn is greater than 8" tall.

Late Postemergence Application:

Rate: Apply 11 fluid ounces of **M1768 Herbicide** per treated acre.

Timing: Apply **M1768 Herbicide** from 8 - 36" tall corn or 15 days before tassel emergence, whichever comes first. For best performance, apply when weeds are less than 3" tall.

Apply directed spray when corn leaves prevent proper spray coverage, sensitive crops are growing nearby, or tank mixing with 2,4-D. Do not apply **M1768 Herbicide** when soybeans are growing nearby if any of these conditions exist:

- corn is more than 24" tall
- soybeans are more than 10" tall
- soybeans have begun to bloom

Corn Tank Mixes Or Sequential Uses

When using tank mix or sequential applications with **M1768 Herbicide**, always follow the companion product label to determine specific use rates by soil types, weed species, and weed or crop growth stage. In addition, follow precautions and restrictions including state and local use restrictions that may apply to specific products.

Apply **M1768 Herbicide** prior to, in tank mix with, or after one or more of the following herbicides:

Accent ^{®1}	Beacon ^{®1}
Acquire [™]	Bicep [®]
Atrazine	Bladex [®]
Axiom [™]	Bullet [®]
Banvel ^{®1}	Degree [™]

Degree Xtra™
DoublePlay®²
Dual Magnum™
Dual II Magnum®
Eradicane®
Exceed®¹
Extrazine® II
Field Master®
Frontier®
FulTime®
Gramoxone® Extra
Guardsman®
Harness®
Harness® Xtra
Hornet™¹
Laddok® S-12
Lasso®
Liberty®³

Lightning®⁵
Marksman®¹
Outlook™
Permit®¹
Princep®
Prowl®
Python™
Roundup WeatherMAX® (glyphosate)
Roundup PowerMAX® (glyphosate)
RT 3® (glyphosate) Spirit™¹
Stinger®¹
Surpass®
Sutan® +²
TopNotch™
Touchdown®
Tough®
2,4-D¹

¹ See **Table 3. Specific Guidelines for Tank Mixes or Sequential Use Programs** for additional limitations or restrictions that apply for tank mix or sequential use programs with these products.

² Sequential use only.

³ Use only on **Liberty Link**® (glufosinate tolerant) corn hybrids.

⁴ Includes postemergence use on **Roundup Ready**® (glyphosate tolerant) corn hybrids.

⁵ Use only **CLEARFELD**® (imidazolinone tolerant) corn hybrids.

Table 3. Specific Guidelines for Tank Mixes or Sequential Use Programs

Tank Mix Partner	Rate Per Acre
Accent® or Beacon®	When tank mixing, applications immediately following extreme day or night temperature fluctuations or applications when daytime temperatures do not exceed 50° F may result in decreased weed control or crop injury. Delay application until the temperatures warm and both weeds and crop resume normal growth.
2,4-D	To provide maximum crop safety after corn emergence, use this tank mix only after corn is greater than 8" tall and when application can be made with drop pipes that direct spray beneath corn leaves and away from the whorl of the corn. The maximum rate of 2,4-D recommended in this tank mix is 0.25 pints per acre (0.125 pounds of acid equivalent per acre).
Banvel® or Marksman®	Tank mixes with these products that contain dicamba must not exceed a total combined rate of 0.50 pounds of dicamba acid equivalent per acre (0.25 pound on coarse-textured soils or on any soil when corn is greater than 8" tall). Sequential applications of these products must be separated by a minimum of 2 weeks (unless the combined rate is less than 0.5 pounds of dicamba acid equivalent and corn is 8" tall or less) and must not exceed a combined total of 0.75 pounds dicamba acid equivalent per acre for in-crop use.
Exceed, Spirit, Stinger, Homet, or Permit	For improved control of velvetleaf, tank mix 0.25-0.5 ounce of Exceed, 0.5 ounce of Spirit, or 0.17-0.33 ounce Permit per acre with M1768 Herbicide . For improved control of Canada thistle, Stinger at 1.5-3 fluid ounces per acre or Hornet at 0.6-1.2 ounces per acre may be tank mixed with M1768 Herbicide . Use the higher rate in the range for heavier infestations of these weeds.

10.4 Cotton

Preplant Application:

Apply up to 11 fluid ounces of **M1768 Herbicide** per acre to control emerged broadleaf weeds prior to planting cotton in conventional or conservation tillage systems.

For best performance, apply **M1768 Herbicide** when weeds are in the 2 - 4 leaf stage and rosettes are less than 2" across.

Following application of **M1768 Herbicide** and a minimum accumulation of 1" of rainfall or overhead irrigation, a waiting interval of 21 days is required per 11 fluid ounces per acre or less. These intervals must be observed prior to planting cotton.

Do not apply preplant to cotton west of the Rockies.

Do not make **M1768 Herbicide** preplant applications to cotton in geographic areas with average annual rainfall less than 25".

If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds acid equivalent per acre.

Cotton Tank Mixes

For control of grasses or additional broadleaf weeds, **M1768 Herbicide** may be tank mixed with Bladex[®], Caparol[®], Gramoxone[®] Extra, Roundup WeatherMAX[®], Roundup PowerMAX[®], and RT 3[®] herbicides.

10.5 Grass Grown For Seed

Apply 11 - 22 fluid ounces of **M1768 Herbicide** per treated acre on seedling grass after the crop reaches the 3 -5 leaf stage. Apply up to 44 fluid ounces of **M1768 Herbicide** on well-established perennial grass. For best performance, apply **M1768 Herbicide** when weeds are in the 2 - 4 leaf stage and rosettes are less than 2" across. Use the higher level of listed rate ranges when treating more mature weeds or dense vegetative growth.

To suppress annual grasses such as brome (downy and ripgut), rattail fescue, and windgrass, apply up to 44 fluid ounces of **M1768 Herbicide** per treated acre in the fall or late summer after harvest and burning of established grass seed crops. Applications should be made immediately following the first irrigation when the soil is moist and before weeds have more than 2 leaves.

Do not apply **M1768 Herbicide** after the grass seed crop begins to joint.

Refer to the Pasture, Hay, Rangeland, and General Farmstead section for grazing and feeding restrictions.

Grass Seed Tank Mixes

M1768 Herbicide may be applied in tank mixes with one or more of the following herbicides:

Buctril [®]	MCPA amine
Curtail [®]	Sencor [®]
Express [®]	Stinger [®]
Karmex [®]	2,4-D amine or ester

10.6 Proso Millet

For use only within Colorado, Nebraska, North Dakota, South Dakota, and Wyoming.

M1768 herbicide combined with 2,4-D will provide control or suppression of the annual broadleaf weeds listed in **Section 12**.

Apply 5.5 fluid ounces of **M1768 Herbicide** with 0.375 pounds a.i. of 2,4-D. Apply the tank mix of **M1768 Herbicide** + 2,4-D as a broadcast or spot treatment to emerged and actively growing weeds and when proso millet is in the 2 - 5 leaf stage. Use directions for 2,4-D products vary with manufacturers. Refer to a 2,4-D product with labeling consistent with the crop stage timing for

M1768 Herbicide. Some types of proso millet may be affected adversely by a tank mix of **M1768 Herbicide** + 2,4-D.

Do not apply unless possible proso millet crop injury will be acceptable.

Restrictions for proso millet that is grazed or cut for hay are indicated in **Table 4** in the Pasture, Hay, Rangeland, and General Farmstead section of this label.

10.7 Pasture, Hay, Rangeland, And General Farmstead (Noncropland)

M1768 Herbicide is recommended for use on pasture, hay, rangeland, and general farmstead (non-cropland) (including fencerows and non-irrigation ditchbanks) for control or suppression of broadleaf weed and brush species listed in **Section 12**.

M1768 Herbicide may also be applied to non-cropland areas to control broadleaf weeds in noxious weed control programs, districts, or areas including broadcast or spot treatment of roadsides and highways, utilities, railroad, and pipeline rights-of-way. Noxious weeds must be recognized at the state level, but programs may be administered at state, county, or other level.

M1768 Herbicide uses described in this section also pertain to grasses and small grains (forage sorghum, rye, sudangrass, or wheat) grown for grass, forage, fodder, hay and/or pasture use only. Grasses and small grains not grown for grass, forage, fodder, hay and/or pasture must comply with crop-specific uses in this label. Some perennial weeds may be controlled with lower rates of either **M1768 herbicide** or **M1768 Herbicide** plus 2,4-D (refer to **Table 1**).

Rates and Timings

Refer to **Table 1** for rate selection based on targeted weed or brush species. Some weed species will require tank mixes for adequate control.

Rates above 44 fluid ounces of **M1768 Herbicide** per acre are for spot treatments only. Spot treatment is defined as no more than a total of 1000 square feet of treated area per acre. Do not broadcast apply more than 44 fluid ounces per acre.

Retreatments may be made as needed; however, do not exceed a total of 44 fluid ounces of **M1768 Herbicide** per treated acre during a growing season.

Grass grown for hay requires a 7-day wait period between application and harvest.

Crop-Specific Restrictions

Do not apply more than 22 fluid ounces of **M1768 Herbicide** per acre to small grains grown for pasture.

Newly seeded areas may be severely injured if more than 22 fluid ounces of **M1768 Herbicide** is applied per acre.

Established grass crops growing under stress can exhibit various injury symptoms that may be more pronounced if herbicides are applied. Bentgrass, carpetgrass, buffalograss, and St. Augustingrass may be injured if more than 22 fluid ounces of **M1768 Herbicide** is applied per acre. Usually colonial bentgrasses are more tolerant than creeping types. Velvetgrasses are most easily injured. Treatments will kill or injure alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

Table 4 lists the timing restrictions for grazing or harvesting hay from treated fields. There are no grazing restrictions for animals other than lactating dairy animals.

Table 4. Timing Restrictions for Lactating Dairy Animals Following Treatment

M1768 Rate per Treated Acre (fluid ounces)	Days Before Grazing (days)	Days Before Hay Harvest (days)
Up to 22	7	37
Up to 44	21	51
Up to 88 (for spot treatment only).	40	70

- **Spot Treatments: M1768 Herbicide** may be applied to individual clumps or small areas of undesirable vegetation using handgun or similar types of application equipment. Apply diluted sprays to allow complete wetting (up to runoff) of foliage and stems.

Cut Surface Treatments:

M1768 Herbicide may be applied as a cut surface treatment for control of unwanted trees and prevention of sprouts of cut trees.

Rate: Mix 1 part **M1768 Herbicide** with 1 - 3 parts water to create the application solution. Use the lower dilution rate when treating difficult-to-control species.

- **For Frill or Girdle Treatments:** Make a continuous cut or a series of overlapping cuts using an axe to girdle tree trunk. Spray or paint the cut surface with the solution.
- **For Stump Treatments:** Spray or paint freshly cut surface with the water mix. The area adjacent to the bark should be thoroughly wet.

Note: For more rapid foliar effects, 2,4-D may be added to the solution.

Applications For Control of Dormant Multiflora Rose:

M1768 Herbicide can be applied when plants are dormant as an undiluted spot treatment directly to the soil or as a Lo-Oil basal bark treatment using an oil-water emulsion solution.

- **Spot treatments:** Spot treatment applications of **M1768 Herbicide** should be applied directly to the soil as close as possible to the root crown but within 6 - 8" of the crown. On sloping terrain, apply **M1768 Herbicide** to the uphill side of the crown. Do not apply when snow or water prevents applying **M1768 Herbicide** directly to the soil. The use rate of **M1768 Herbicide** depends on the canopy diameter of the multiflora rose.

Examples: Use 0.34, 1.38, or 3.23 fluid ounces of **M1768 Herbicide** respectively, for 5, 10, or 15 feet canopy diameters.

- **Lo-Oil basal bark treatments:** For Lo-Oil basal bark treatments, apply **M1768 Herbicide** to the basal stem region from the ground line to a height of 12 - 18". Spray until runoff, with special emphasis on covering the root crown. For best results, apply **M1768 Herbicide** when plants are dormant. Do not apply after bud break or when plants are showing signs of active growth. Do not apply when snow or water prevents applying **M1768 Herbicide** to the ground line.

To prepare approximately 2 gallons of a Lo-Oil spray solution:

- 1) Combine 1.5 gallons of water, 1 ounce of emulsifier, 22 fluid ounces of **M1768 Herbicide**, and 2.5 pints of No. 2 diesel fuel.
- 2) Adjust the amounts of materials used proportionately to the amount of final spray solution desired.

Do not exceed 8 gallons of spray solution mix applied per acre, per year.

Pasture Tank Mixes

M1768 herbicide may be applied in tank mixes with one or more of the following herbicides:

Acquire™
 Ally®
 Amber®
 Crossbow®
 Curtail®
 Garlon®
 Gramoxone® Extra

Roundup Ultra® RT
 Roundup WeatherMAX®
 Roundup PowerMAX®
 RT 3®
 Stinger®
 Tordon® 22K
 2,4-D

Conservation Reserve Program (CRP)

M1768 Herbicide is recommended for use on both newly seeded and established grasses grown in Conservation Reserve or federal Set-Aside Programs. Treatments of **M1768 Herbicide** will injure or may kill alfalfa, clovers, lespedeza, wild winter peas, vetch, and other legumes.

NEWLY SEEDED AREAS

M1768 Herbicide may be applied either preplant or postemergence to newly seeded grasses or small grains such as barley, oats, rye, sudangrass, wheat, or other grain species grown as a cover crop. Postemergence applications may be made after seedling grasses exceed the 3-leaf stage. Rates of **M1768 Herbicide** greater than 22 fluid ounces per treated acre may severely injure newly seeded grasses.

Preplant applications may injure new seedlings if the interval between application and grass planting is less than 45 days per 22 fluid ounces of **M1768 Herbicide** applied per treated acre west of the Mississippi River or 20 days per 22 fluid ounces applied east of the Mississippi River.

ESTABLISHED GRASS STANDS

Established grass stands are perennial grasses planted one or more seasons prior to treatment. Certain species (bentgrass, carpetgrass, smooth brome, buffalograss, or St. Augustinegrass) may be injured when treated with more than 22 fluid ounces of **M1768 Herbicide** per treated acre.

When applied at recommended rates, **M1768 Herbicide** will control many annual and biennial weeds and provide control or suppression of many perennial weeds.

Rates and Timings

Apply 5.5 - 44 fluid ounces of **M1768 Herbicide** per acre. Refer to **Table 1** for rates based on target weed species. **M1768 Herbicide** may be tank mixed or applied sequentially with other products labeled for use in Conservation Reserve Programs such as atrazine, Cyclone[®], glyphosate (Acquire[™], Roundup WeatherMAX[®], Roundup PowerMAX[®], RT 3[®]), Gramoxone[®] Extra, Touchdown[®], or 2,4-D. Retreatments may be made as needed; however, do not exceed a total of 88 fluid ounces (4 pints) of **M1768 Herbicide** per acre per year.

10.8 Small Grains Not Underseeded To Legumes (fall- and spring-seeded barley, oat, triticale and wheat)

M1768 Herbicide combinations with listed tank mix partners will provide control or suppression of the annual broadleaf weeds listed in **Section 12**. For improved control of listed weeds, tank mix **M1768 Herbicide** with one or more of the herbicides listed.

M1768 Herbicide used in a tank mix with other herbicides offers the best spectrum of weed control and herbicide tolerant or resistant weed management. Refer to the specific section crop for **M1768 Herbicide** application rate and timing.

For applications prior to weed emergence or when sulfonylurea-resistant weeds are present or suspected, tank mix a minimum of 4.12 fluid ounces of **M1768 Herbicide** per treated acre with a non-sulfonylurea herbicide such as 2,4-D or MCPA. Tank mixing **M1768 Herbicide** with these products will offer more consistent control of sulfonylurea-resistant weeds.

Additives: When tank mixing **M1768 Herbicide** with sulfonylurea herbicides (Ally[®], Amber[®], Canvas[®], Express[®], Finesse[®], Glean[®], Harmony[®] Extra, and Peak[®]), use an agriculturally approved surfactant as indicated in Section 7.4 Surfactants and Adjuvants of this label.

Refer to the specific crop sections below for use rates. When treating difficult to control weeds such as kochia, wild buckwheat, cow cockle, prostrate knotweed, Russian thistle, and prickly lettuce or when dense vegetative growth occurs, use the 4.12 – 5.5 fluid ounces of **M1768 Herbicide** per acre.

Timings: Apply **M1768 Herbicide** before, during, or after planting small grains. See specific small grain crop uses below for maximum crop stage. For best performance, apply **M1768 Herbicide** when weeds are in the 2 - 3 leaf stage and rosettes are less than 2" across. Applying **M1768**

Herbicide to small grains during periods of rapid growth may result in crop leaning. This condition is temporary and will not reduce crop yields.

Restrictions for small grain areas that are grazed or cut for hay are indicated in **Table 4** in Pasture, Hay, Rangeland, and General Farmstead section of this label.

10.9 Small Grains: Barley (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of **M1768 Herbicide** to fall-seeded barley prior to the jointing stage. Apply 2.75 – 4.12 fluid ounces of **M1768 Herbicide** before spring-seeded barley exceeds the 4-leaf stage.

Note: For spring barley varieties that are seeded during the winter months or later, follow the rates and timings given for spring-seeded barley.

Do not tank mix **M1768 Herbicide** with 2,4-D in early season applications on spring-seeded barley.

Preharvest applications:

M1768 Herbicide can be used to control weeds that may interfere with harvest of fall and spring-seeded barley. Apply 11 fluid ounces of M1768 herbicide per acre as a broadcast or spot treatment to annual broadleaf weeds when barley is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing, but before weeds canopy.

A waiting interval of 7 days is required before harvest. Do not use preharvest-treated barley for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

For control of additional broadleaf weeds or grasses, **M1768 Herbicide** may be tank mixed with other herbicides, such as 2,4-D, that are labeled for preharvest uses in barley.

Do not make preharvest applications in California.

Barley Tank Mixes

Table 5.

Tank Mix Partner*	Rate Per Acre
Ally [®]	0.05 - 0.1 ounce ¹
Amber [®]	0.14 - 0.28 ounce ¹
Bronate [®]	0.75 - 1.5 pints
Buctril [®]	1 - 1.5 pints
Canvas [®]	0.2 - 0.4 ounce ¹
Express [®]	0.083 - 0.167 ounce ¹
Finesse [®]	0.167 - 0.33 ounce ¹
Glean [®]	0.167 ounce ¹
Harmony [®] Extra	0.167 - 0.33 ounce ¹
MCPA amine or ester	8 - 12 fluid ounces ² (0.25 - 0.375 pound a.e.)
Metribuzin (Sencor [®] , Lexone [®])	0.125 - 0.47 pound a.i.
2,4-D amine or ester ^{2,3}	8 fluid ounces (0.25 pound a.e.)
<p>* Follow all tank mix partners' labeling for use rates, precautions and restrictions. ¹ Do not use low rates of sulfonylureas (Ally, Amber, Canvas, Express, Finesse, Glean, and Harmony Extra) on more mature weeds or on dense vegetative growth. ² When using formulations other than 4 pounds per gallon use pounds of a.e. per acre listed. ³ This tank mix is for fall-seeded barley only</p>	

10.10 Small Grains: Oats (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of **M1768 Herbicide** per acre to fall-seeded oat prior to the jointing stage. Apply 2.75 – 5.5 fluid ounces of **M1768 Herbicide** before spring-seeded oat exceed the 5-leaf stage.

M1768 Herbicide may be tank mixed with MCPA amine or ester for applications in oat.

Do not tank mix **M1768 Herbicide** with 2,4-D in oat.

10.11 Small Grains: Triticale (fall- and spring-seeded)

Early season applications:

Apply 2.75 – 5.5 fluid ounces of **M1768 Herbicide** to triticale.

Early season applications to fall-seeded triticale must be made prior to the jointing stage.

Early season applications to spring-seeded triticale must be made before triticale reaches the 6-leaf stage.

Triticale Tank Mixes:

For best performance, should be used in tank mix combination with bromoxynil (Buctril, Moxy™ 2E) herbicide.

10.12 Small Grains: Wheat (fall- and spring-seeded)

Early Season Applications:

Apply 2.75 – 5.5 fluid ounces of **M1768 Herbicide** to wheat unless using one of the fall-seeded wheat specific programs below.

Early season applications to fall-seeded wheat must be made prior to the jointing stage.

Early season applications to spring-seeded wheat must be made before wheat exceeds the 6-leaf stage.

Early developing wheat varieties such as TAM 107, Madison, or Wakefield must receive application between early tillering and the jointing stage. Care should be taken in staging these varieties to be certain that the application occurs prior to the jointing stage.

To improve control of Russian thistle, flaxweed, groomwell, or mayweed, add 2,4-D amine or ester to a tank mix with one of the following herbicides: Ally®, Amber®, Canvas®, Express®, Finesse®, Glean®, Harmony® Extra, or Peak®.

Specific use programs for fall-seeded wheat only:

M1768 Herbicide may be used at 8.25 fluid ounces on fall-seeded wheat in Western Oregon as a spring application only. In Colorado, Kansas, New Mexico, Oklahoma, and Texas, up to 11 fluid ounces of **M1768 Herbicide** may be applied on fall-seeded wheat after it exceeds the 3-leaf stage for suppression of perennial weeds, such as field bindweed. Applications may be made in the fall following a frost but before a killing freeze. **M1768 Herbicide** may be tank mixed with 2,4-D amine at 11 fluid ounces after wheat begins to tiller. Periods of extended stress such as cold and wet weather may enhance the possibility of crop injury. For fall applications only, do not use if the potential for crop injury is not acceptable.

Preharvest applications:

M1768 Herbicide can be used to control weeds that may interfere with harvest of wheat. Apply 11 fluid ounces **M1768 Herbicide** per acre as a broadcast or spot treatment to annual broadleaf weeds when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Best results will be obtained if application can be made when weeds are actively growing but before weeds canopy.

A waiting interval of 7 days is required before harvest. Do not use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

For control of additional broadleaf weeds or grasses, **M1768 Herbicide** herbicide may be tank mixed with other herbicides such as Ally[®], Roundup WeatherMAX[®], Roundup PowerMAX[®], Roundup[®] Ultra, and 2,4-D. Do not make preharvest applications in California.

Wheat Tank Mixes

Table 6.

Tank Mix Partner*	Rate Per Acre
Ally [®]	0.05 - 0.1 ounce ¹
Amber [®]	0.14 - 0.28 ounce ¹
Bronate [®]	0.75 - 1.5 pints
Buctril [®]	1 - 1.5 pints
Canvas [®]	0.2 - 0.4 ounce ¹
Curtail [®]	2 - 2.67 pints
Dakota [®]	16 fluid ounces
Express [®]	0.083 - 0.167 ounce ¹
Finesse [®]	0.167 - 0.33 ounce ¹
Glean [®]	0.167 ounce ¹
Harmony [®] Extra	0.167 - 0.33 ounce ¹
Karmex ^{®3}	0.5 - 1.5 pounds
Glyphosate (Roundup Ultra [®] RT) ⁴	12 - 16 fluid ounces
MCPA amine or ester ⁵	8 - 12 fluid ounces (0.25 - 0.375 pound a.e.)
Metribuzin ³ (Sencor [®] , Lexone [®])	0.25 - 0.375 pound a.i.
Peak ^{®1}	0.25 - 0.38 ounce
Stinger [®]	4 - 5.33 fluid ounces
Tiller ^{®2}	1 - 1.7 pints
2,4-D amine or ester ⁵	8 - 12 fluid ounces (0.25 - 0.375 pound a.e.)

* Follow all tank mix partners' labeling for use rates, precautions and restrictions.

¹ Do not use low rates of sulfonylurea herbicides, such as Ally, Amber, Canvas, Express, Finesse, Glean, Harmony Extra, and Peak on more mature weeds or on dense vegetative growth.

² Do not use **M1768 Herbicide** as a tank mix treatment with Dakota or Tiller on Durum wheat. Do not tank mix with Tiller if wild oat is the target weed.

³ Tank mixes with Karmex and metribuzin are for use in fall-seeded wheat only.

⁴ A tank mix of up to 5.5 fluid ounces of **M1768 Herbicide** with Roundup Ultra RT or any glyphosate formulation labeled for use as a preplant application to small grains may be applied with no waiting period prior to planting.

⁵ Up to 44 fluid ounces of (1.0 pound a.e.) may be used on fall-seeded wheat if crop injury is acceptable. When using formulations other than 4 pounds per gallon, use the pounds of a.e. per acre listed.

10.13 Sorghum

M1768 Herbicide may be applied preplant, postemergence, or preharvest in sorghum to control many annual broadleaf weeds and to reduce competition from established perennial broadleaf weeds, as well as control their seedlings.

Do not graze or feed treated sorghum forage or silage prior to mature grain stage. If sorghum is grown for pasture or hay, refer to Pasture, Hay, Rangeland, and General Farmstead section of this label for specific grazing and feeding restrictions.

Do not apply **M1768 Herbicide** to sorghum grown for seed production.

Preplant Application:

Up to 11 fluid ounces of **M1768 Herbicide** may be applied per acre if applied at least 15 days before sorghum planting.

Postemergence Application:

Up to 11 fluid ounces of **M1768 Herbicide** per acre may be applied after sorghum is in the spike stage (all sorghum emerged) but before sorghum is 15" tall. For best performance, apply **M1768 Herbicide** when the sorghum crop is in the 3 - 5 leaf stage and weeds are small (less than 3" tall). Use drop pipes (drop nozzles) if sorghum is taller than 8". Keep the spray off the sorghum leaves and out of the whorl to reduce the likelihood of crop injury and to improve spray coverage of weed foliage. Applying **M1768 Herbicide** to sorghum during periods of rapid growth may result in temporary leaning of plants or rolling of leaves. These effects are usually outgrown within 10 - 14 days.

Preharvest uses in Texas and Oklahoma only: Up to 11 fluid ounces of **M1768 Herbicide** per acre may be applied for weed suppression any time after the sorghum has reached the soft dough stage. An agriculturally approved surfactant may be used to improve performance. Delay harvest until 30 days after a preharvest treatment.

Split Application:

M1768 Herbicide may be applied in split applications: preplant followed by postemergence or preharvest; or postemergence followed by preharvest. Do not exceed 11 fluid ounces per acre, per application or a total of 22 ounces per acre, per season.

Sorghum Tank Mixes and Sequential Treatments

M1768 herbicide may be applied prior to, in a tank mix with, or after one or more of the following herbicides:

Acquire™
Atrazine
Basagran®
Bicep II Magnum®
Buctril®
Cyclone®
Dual Magnum™
Dual II Magnum®
Fallow Master®
Frontier®
Gramoxone® Extra

Guardsman®
Laddok® S-12
Landmaster®
Lasso®
Outlook™
Paramount®
Peak®
Permit®
Ramrod®
Roundup Ultra®

10.14 Soybean

Preplant Applications:

Apply 5.5 -22 fluid ounces of **M1768 Herbicide** per acre to control emerged broadleaf weeds prior to planting soybeans. Do not exceed 22 fluid ounces of **M1768 Herbicide** per acre in a spring application prior to planting soybeans.

Following application of **M1768 Herbicide** and a minimum accumulation of 1" rainfall or overhead irrigation, a waiting interval of 14 days is required for 11 fluid ounces per acre or less, and 28 days for 22 fluid ounces per acre. These intervals must be observed prior to planting soybeans or crop injury may occur.

Do not make **M1768 Herbicide** preplant applications to soybeans in geographic areas with average annual rainfall less than 25".

Preharvest Applications:

M1768 Herbicide can be used to control many annual and perennial broadleaf weeds and control or suppress many biennial and perennial broadleaf weeds in soybean prior to harvest (refer to **Section 10**). Apply 11 - 44 fluid ounces of **M1768 Herbicide** per acre as a broadcast or spot treatment to emerged and actively growing weeds after soybean pods have reached mature brown color and at least 75% leaf drop has occurred.

Do not harvest soybeans until 7 days after application.

Treatments may not kill weeds that develop from seed or underground plant parts, such as rhizomes or bulblets, after the effective period for **M1768 Herbicide**. For seedling control, a follow-up program or other cultural practice could be instituted.

Do not use preharvest-treated soybean for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better.

Do not feed soybean fodder or hay following a preharvest application of **M1768 Herbicide**.

Do not make preharvest applications in California.

Soybean Tank Mixes

Preplant Tank Mixes:

M1768 herbicide may be tank mixed with other herbicides registered for early preplant use in soybeans including burndown herbicides such as glyphosate (Acquire™, Roundup WeatherMAX®, Roundup PowerMAX® and RT 3®) and 2,4-D or residual herbicides such as Outlook®, Frontier® or Dual Magnum™.

Preharvest Tank Mixes:

M1768 Herbicide may be tank mixed with other herbicides registered for preharvest use in soybeans such as glyphosate (Roundup WeatherMAX®, Roundup PowerMAX® and RT 3®) and Gramoxone® Extra.

10.15 Sugarcane

Apply **M1768 Herbicide** for control of annual, biennial, or perennial broadleaf weeds listed in **Section 11**. Apply 11 - 33 fluid ounces of **M1768 Herbicide** per acre for control of annual weeds, 22 - 44 fluid ounces for control of biennial weeds, and 44 fluid ounces for control or suppression of perennial weeds.

Use the higher level of listed rate ranges when treating dense vegetative growth.

A single retreatment may be made as needed, however, do not exceed a total of 88 fluid ounces of **M1768 Herbicide** per treated acre during a growing season.

Timing: **M1768 Herbicide** may be applied to sugarcane any time after weeds have emerged, but before the close-in stage of sugarcane. Applications of 44 fluid ounces of **M1768 Herbicide** per acre made over the top of actively growing sugarcane may result in crop injury.

When possible, direct the spray beneath the sugarcane canopy to minimize the likelihood of crop injury. Using directed sprays will also help maximize the spray coverage of weed foliage.

Sugarcane Tank Mixes

M1768 Herbicide may be tank mixed with other products registered for use in sugarcane such as Asulox®, atrazine, Evik®, and 2,4-D.

10.16 Farmstead Turf (noncropland) and Sod Farms

Do not use on residential sites.

For use in general farmstead (noncropland) and sod farms, apply 4.12 – 44 fluid ounces of **M1768 Herbicide** per acre to control or suppress growth of many annual, biennial, and some perennial

broadleaf weeds commonly found in turf. **M1768 Herbicide** will also suppress many other listed perennial broadleaf weeds and woody brush and vine species. Refer to **Table 1** for rate recommendations based on targeted weed or brush species and growth stage. Some weed species will require tank mixes for adequate control.

Repeat treatments may be made as needed; however, do not exceed 44 fluid ounces of **M1768 Herbicide** per acre, per growing season.

Apply 30 - 200 gallons of diluted spray per treated acre (3 - 17 quarts of water per 1,000 square feet), depending on density or height of weeds treated and on the type of equipment used.

To avoid injury to newly seeded grasses, delay application of **M1768 Herbicide** until after the second mowing. Furthermore, applying more than 16 fluid ounces of **M1768 Herbicide** per treated acre may cause noticeable stunting or discoloration of sensitive grass species such as bentgrass, carpetgrass, buffalograss, and St. Augustinegrass.

In areas where roots of sensitive plants extend, do not apply more than 5.5 fluid ounces of **M1768 Herbicide** per treated acre on coarse-textured (sandy-type) soils, or in excess of 8 fluid ounces per treated acre on fine-textured soils. Do not make repeat applications in these areas for 30 days and until previous applications of **M1768 Herbicide** have been activated in the soil by rain or irrigation.

Farmstead Turf (noncropland) and Sod Farm Tank Mixes

Apply 4.4 - 11 fluid ounces of **M1768 Herbicide** per acre in a tank mix with one of the products in Table 8 at the rates listed. Use the higher rates when treating established weeds.

Table 7.

Tank Mix Partner*	Rate Per Acre
bromoxynil (Buctril®)	0.375 - 0.5 pound a.i
MCPA	0.5 - 1.5 pounds a.e.
MCPP	0.5 - 1 .5 pounds a.e.
2,4-D	0.5 - 1.5 pounds a.e.
* Follow all tank mix partners' labeling for use rates, precautions and restrictions.	

11.0 WEEDS CONTROLLED

GENERAL WEED LIST, Including ALS- and Triazine-Resistant Biotypes

ANNUALS

Alkanet	Chamomile, Corn	Fumitory
Amaranth, Palmer, Powell, Spiny	Chevil, Bur	Goosefoot, Nettleleaf
Aster, Slender	Chickweed, Common	Hempnettle
Bedstraw, Catchweed	Clovers	Henbit
Beggarweed, Florida	Cockle, Corn, Cow, White	Jacobs-Ladder
Broomweed, Common	Cocklebur, Common	Jimsonweed
Buckwheat, Tartary, Wild	Copperleaf, Hophornbeam	Knawel (German Moss)
Buffalobur	Cornflower (Bachelor Button)	Knotweed, Prostrate
Burclover, California	Croton, Tropic, Woolly	Kochia
Burcucumber	Daisy, English	Ladysthumb
Buttercup, Corn, Creeping, Roughseed, Western Field	Dragonhead, American	Lambsquarters Common
Carpetweed	Eveningprimrose, Cutleaf	Lettuce, Miners, Prickly
Catchfly, Nightflowering	Falseflax, Smallseed	Mallow, Common, Venice
	Fleabane, Annual	Marestail (Horseweed)
	Flixweed	Mayweed
		Morningglory, Ivyleaf, Tall

Mustard, Black, Blue,
Tansy, Treacle, Tumble,
Wild, Yellowtops
Nightshade, Black, Cutleaf
Pennycress, Field
(Fanweed, Frenchweed,
Stinkweed)
Pepperweed, Virginia
(Peppergrass)
Pigweed, Prostrate,
Redroot (Carelessweed),
Rough, Smooth, Tumble
Pineappleweed
Poorjoe
Poppy, Red-horned
Puncturevine
Purslane, Common

Pusley, Florida
Radish, Wild
Ragweed, Common, Giant
(Buffaloweed), Lance-
Leaf
Rocket, London, Yellow
Rubberweed, Bitter
(Bitterweed)
Salsify
Senna, Coffee
Sesbania, Hemp
Shepherdspurse
Sicklepod
Sida, Prickly (Teaweed)
Smartweed, Green,
Pennsylvania
Sneezeweed, Bitter

Sowthistle, Annual, Spiny
Spanish Needles
Spikeweed, Common
Spurge, Prostrate, Leafy
Spurry, Corn
Starbur, Bristly
Starwort, Little
Sumpweed, Rough
Sunflower, Common (Wild),
Volunteer
Thistle, Russian
Velvetleaf
Waterhemp, Common, Tall
Waterprimrose, Winged
Wormwood

BIENNIALS

Burdock, Common
Carrot, Wild (Queen Anne's
Lace)
Cockle, White
Eveningprimrose, Common
Geranium, Carolina

Gromwell
Knapweed, Diffuse, Spotted
Mallow, Dwarf
Plantain, Bracted
Ragwort, Tansy
Starthistle, Yellow

Sweetclover
Teasel
Thistle, Bull, Milk, Musk,
Plumeless

PERENNIALS

Alfalfa¹
Artichoke, Jerusalem
Aster, Spiny, Whiteheath
Bedstraw, Smooth
Bindweed, Field, Hedge
Blueweed, Texas
Bursage, Woollyleaf¹ (Bur
Ragweed, Povertyweed)
Buttercup, Tall
Campion, Bladder
Chickweed, Field,
Mouseear
Chicory¹
Clover¹, Hop
Dandelion¹, Common
Dock¹ Broadleaf
(Bitterdock), Curly
Dogbane, Hemp
Dogfennel¹ (Cypressweed)
Fern, Bracken
Garlic, Wild

Goldenrod, Canada,
Missouri
Goldenweed, Common
Hawkweed
Henbane, Black¹
Horsenettle, Carolina
Ironweed
Knapweed, Black, Diffuse,
Russian¹, Spotted
Milkweed, Climbing,
Common, Honeyvine,
Western Whorled
Nettle, Stinging
Nightshade, Silverleaf
(White Horsenettle)
Onion, Wild
Plaintain, Broadleaf,
Buckhorn
Pokeweed
Ragweed, Western
Redvine

Sericia Lespedeza
Smartweed, Swamp
Snakeweed, Broom
Sorrel¹, Red (Sheep Sorrel)
Sowthistle¹, Perennial
Spurge, Leafy
Sundrops
Thistle, Canada, Scotch
Toadflex, Dalmatian
Tropical Soda Apple
Trumpet creeper (Buckvine)
Vetch
Waterhemlock, Spotted
Waterprimrose, Creeping
Woodsorrel¹, Creeping,
Yellow
Wormwood, Absinth,
Louisiana
Yankeeweed
Yarrow, Common¹

¹ Noted perennials may be controlled using lower rates of **M1768 Herbicide** than those recommended for other listed perennial weeds.

WOODY

Alder
Ash
Aspen

Basswood
Beech
Birch

SPECIES

Blackberry²
Blackgum²
Cedar²

Cherry	Huisache	Rose ² , McCartney,
Chinquapin	Ivy, Poison	Multiflora
Cottonwood	Kudzu	Sagebrush, Fringed ²
Creosotebush ²	Locust, Black	Sassafras
Cucumbertree	Maple	Serviceberry
Dewberry ²	Mesquite	Spicebush
Dogwood ²	Oak	Spruce
Elm	Oak, Poison	Sumac
Grape	Olive, Russian	Sweetgum ²
Hawthorn (Thornapple) ²	Persimmon, Eastern	Sycamore
Hemlock	Pine	Tarbrush
Hickory	Plum, Sand (Wild Plum) ²	Willow
Honeylocust	Poplar	Witchhazel
Honeysuckle	Rabbitbrush	Yaupon ²
Hornbeam	Redcedar, Eastern ²	Yucca ²
Huckleberry		

²Growth suppression only

12.0 LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to glyphosate dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

~~For in-crop (over-the-top) uses on Roundup Ready crops, crop safety and weed control performance are not warranted by Monsanto when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.~~

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH

APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

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EPA Reg. No. 524-617

EPA Establishment No. [insert appropriate est. no.]

Lot number [insert appropriate lot number]

Net contents [insert net contents]

Packed for:
MONSANTO COMPANY
800 N. Lindbergh Blvd.
ST. LOUIS, MISSOURI, 63167 U.S.A.

© [DATE]

II. SUPPLEMENTAL LABELS FOR EPA REG. No. 524-617

M1768 HERBICIDE SUPPLEMENTAL LABEL

FOR USE ON DICAMBA-TOLERANT SOYBEAN MON 87708 GROWN FOR RESEARCH, FIELD TRIALS OR SEED PRODUCTION ONLY, INCLUDING USDA REGULATED PLANTINGS OR SEED PRODUCTION.

This supplemental label expires May 6, 2017, and must not be used or distributed after this date.

EPA Reg. No. 524-617

Directions For Use

Refer to the M1768 Herbicide main label, EPA Reg. No. 524-617, for complete Directions For Use and all applicable restrictions and precautions. When following the instructions on this supplemental label, the user must have this label and the entire M1768 Herbicide container label in possession at the time of pesticide application.

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Product Information

Dicamba-tolerant soybean MON 87708 contains patented technology licensed exclusively to Monsanto Company. Planting of dicamba-tolerant soybean MON 87708 may only be done under agreement and following all instructions of Monsanto Company.

This product may be used for weed control and for control of non-dicamba-tolerant soybean in research, field trials or seed production, including USDA regulated plantings, or seed production fields of dicamba-tolerant soybean MON 87708. Severe injury or destruction of the soybeans will result if soybeans not designated as dicamba-tolerant soybean MON 87708 are sprayed with this product.

Application Instructions

This product will control labeled weeds and non-dicamba- tolerant soybean in research, field trials, or seed production, including USDA regulated plantings, or seed production fields of dicamba-tolerant soybean MON 87708.

Apply up to 44 fluid ounces of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. A second application up to 44 fluid ounces per acre may be applied after a 21-day interval, if needed, to control weeds or non-dicamba-tolerant soybean plants.

Application Timing. This product may be applied to dicamba-tolerant soybean MON 87708 preplant, preemergence and from emergence to harvest.

Use Restrictions

- Maximum Seasonal Use Rate. Do not exceed a maximum rate of 88 fluid ounces of M1768 Herbicide per acre per year.
- Avoid off-target movement. Use extreme care when applying M1768 Herbicide to prevent injury to non-target plants. Refer to M1768 Herbicide main label for information regarding aerial and ground application recommendations and restrictions.
- Do not feed MON 87708 soybean fodder or hay. Harvested dicamba-tolerant soybean MON 87708 grain, forage and hay cannot be used or processed for food or feed.

M1768 HERBICIDE SUPPLEMENTAL LABEL

FOR USE ON DICAMBA-TOLERANT COTTON GH_S26695 GROWN FOR RESEARCH, FIELD TRIALS, OR SEED PRODUCTION ONLY, INCLUDING USDA REGULATED PLANTINGS OR SEED PRODUCTION

This supplemental label expires May 6, 2017, and must not be used or distributed after this date.

EPA Reg. No. 524-617

Directions For Use

Refer to the M1768 Herbicide main label, EPA Reg. No. 524-617, for complete Directions For Use and all applicable restrictions and precautions. When following the instructions on this supplemental label, the user must have this label and the entire M1768 Herbicide container label in possession at the time of pesticide application.

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Product Information

Dicamba-tolerant cotton GH_S26695 contains patented technology. Planting of dicamba-tolerant cotton GH_S26695 may only be done under agreement with and following all instructions of Monsanto Company.

This product may be used for weed control and for control of non-dicamba-tolerant cotton in research, field trials or seed production, including USDA regulated plantings, or seed production fields of dicamba-tolerant cotton GH_S26695. Severe injury or destruction of the cotton crop will result if cotton not designated as dicamba-tolerant cotton GH_S26695 is sprayed with this product.

Application Instructions

This product will control labeled weeds and non-dicamba tolerant cotton in research, field trials or seed production, including USDA regulated plantings, or in seed production fields of dicamba-tolerant cotton GH_S26695.

Apply up to 44 fluid ounces of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. A second application up to 44 fluid ounces per acre may be applied if needed to control weeds or non-dicamba-tolerant cotton plants.

Application timing. This product may be applied to dicamba-tolerant cotton GH_S26695 preplant, pre-emergence and from emergence to harvest.

Use Restrictions

- Maximum seasonal use rate. Do not exceed a maximum rate of 88 fluid ounces of this product per acre per year.
- Avoid off-target movement. Use extreme care when applying M1768 Herbicide to prevent injury to non-target plants. Refer to M1768 Herbicide main label for information regarding aerial and ground application recommendations and restrictions.
- Do not feed GH_S26695 cotton seed or gin trash that is treated with this product. Harvested dicamba-tolerant GH_S26695 cotton treated with M1768 herbicide cannot be used or processed for food or feed.

M1768 HERBICIDE SUPPLEMENTAL LABEL**FOR USE ON DICAMBA-TOLERANT CORN PVCMT507801 OR PVCMT507802 GROWN FOR RESEARCH, FIELD TRIALS, OR SEED PRODUCTION ONLY, INCLUDING USDA-REGULATED PLANTINGS OR SEED PRODUCTION**

This supplemental label expires May 6, 2017, and must not be used or distributed after this date.

EPA Reg. No. 524-617

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

The supplemental labeling and the entire M1768 Herbicide container label, EPA Reg.

No. 524-617, must be in possession of the user at the time of application.

Read the label affixed to the container for M1768 Herbicide before applying.

Use of M1768 Herbicide according to this labeling is subject to the use precautions and limitations imposed by the label affixed to the container for M1768 Herbicide.

Product Information

Dicamba-tolerant corn PVCMT507801 and PVCMT507802 contain patented technology licensed exclusively to Monsanto Company. Planting of dicamba-tolerant corn PVCMT507801 and PVCMT507802 may only be done under agreement and following all instructions of Monsanto Company.

This product may be used for weed control and for control of non-dicamba-tolerant corn grown for research, field trials, or seed production only, including USDA-regulated plantings or seed production fields of dicamba-tolerant corn PVCMT507801 and PVCMT507802. Severe injury or destruction of the corn will result if corn not designated as dicamba tolerant corn PVCMT507801 and PVCMT507802 is sprayed with this product.

Application Instructions

This product can be used to control labeled weeds and non-dicamba-tolerant corn in research, field trials, and seed production, including USDA-regulated plantings, or seed production fields of dicamba-tolerant corn PVCMT507801 and PVCMT507802.

Apply up to 44 fluid ounces of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. A second application up to 44 fluid ounces per acre may be applied if needed to control weeds or non-dicamba-tolerant corn plants.

Application Timing. This product may be applied to dicamba-tolerant corn PVCMT507801 and PVCMT507802 preplant, preemergence, and from emergence to harvest.

Use Restrictions

- Maximum seasonal use rate – Do not exceed a maximum rate of 88 fluid ounces of M1768 Herbicide per acre per year.
- Avoid off-target movement - Use extreme care when applying M1768 Herbicide to avoid injury to desirable plants. Refer to M1768 Herbicide main label for information regarding aerial and ground applications.
- Do not feed PVCMT507801 and PVCMT507802 corn forage or fodder. Harvested dicamba-tolerant corn PVCMT507801 and PVCMT507802 grain, forage, and fodder cannot be used or processed for food or feed.

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 2/2/2017 9:36:25 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
Subject: RE: 524-616: Roundup Xtend R350 - request for renegotiating the PRIA due date

Thanks for the message Kay- based on our discussion I didn't realize that there would almost a 3 month delay on approval of the premix. As I mentioned in the call I would like the field deposition for RU Xtend to be considered as part of this approval since we had submitted that on April 12, 2016 under a data review so that it would be reviewed before the label amendment. We would like an alternate baseline to be considered for the addition of tank mix partners that would reflect those conditions that we tested in the field TTI 11003 nozzles at 50 psi which generated a buffer distance of 52.8 ft at the NOER. In addition, rapid clearance of any synergy between dicamba and glyphosate since that study was also submitted on Nov 15th, 2016 which clearly shows no impact so that we can move forward to enablement of tank mixing with our Xtendimax product.

Please confirm that this can be done in the 3 months that you have suggested.

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Thursday, February 02, 2017 11:33 AM
To: BHAKTA, TINA [AG/1000]
Cc: Rowland, Grant
Subject: 524-616: Roundup Xtend R350 - request for renegotiating the PRIA due date

Hello, Tina,

Per our phone conversation this morning, we are still not able to finish our decision on this action. Two pieces of data crucial to the decision are still in review with EFED's contractor, and are expected back by March. Given this, we'd like to request to renegotiate the PRIA due date from the current date of February 6, 2017 to a new due date of April 30, 2017. Does Monsanto agree to this new date? Please reply to this email as soon as possible so that I may move the paperwork forward.

Thank you,
Kay

This email and any attachments were sent from a Monsanto email account and may contain confidential and/or privileged information. If you are not the intended recipient, please contact the sender and delete this email and any attachments immediately. Any unauthorized use, including disclosing, printing, storing, copying or distributing this email, is prohibited. All emails and attachments sent to or from Monsanto email accounts may be subject to monitoring, reading, and archiving by Monsanto, including its affiliates and subsidiaries, as permitted by applicable law. Thank you.

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 2/3/2017 8:06:42 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]
Subject: RE: 524-616: Roundup Xtend R350 - request for renegotiating the PRIA due date

Kay,

I have discussed with my leadership and we were hoping for the following; confirmation from EPA for clearance of glyphosate from synergy with dicamba so that we can move forward with enabling tank mixing with our current Xtendimax label assuming wind tunnel results look good, in this case EPA agrees that instead of waiting till final label is issued for RU xtend at the end of the new PRIA that we will be notified as soon as the results from the NTP come back from the contractor in Feb (also can this be brought back in house to get better line of sight for completion). The second would be if the PRIA date could be April 1st instead as that may still enable an option to launch the premix in some areas in 2017.

If we can get confirmation of above, we can agree to a PRIA extension.

Thank you

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Thursday, February 02, 2017 4:05 PM
To: BHAKTA, TINA [AG/1000]
Cc: Rowland, Grant ; Kenny, Daniel
Subject: Re: 524-616: Roundup Xtend R350 - request for renegotiating the PRIA due date

Hello, Tina,

I posed the question to EFED and we have a discussion next Tuesday to sort it all out. Unfortunately I need to renegotiate now, since the date is Monday. RD and upper management are asking me where the paperwork is. Can we please go with April 30 now, but with the understanding that your additional ask may require a bit longer to include?

Thanks

Kay

Sent from my iPhone

On Feb 2, 2017, at 4:36 PM, BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com> wrote:

Thanks for the message Kay- based on our discussion I didn't realize that there would almost a 3 month delay on approval of the premix. As I mentioned in the call I would like the field deposition for RU Xtend to be considered as part of this approval since we had submitted that on April 12, 2016 under a data review so that it would be reviewed before the label amendment. We would like an alternate baseline to be considered for the addition of tank mix partners that would reflect those conditions that we tested

in the field TTI 11003 nozzles at 50 psi which generated a buffer distance of 52.8 ft at the NOER. In addition, rapid clearance of any synergy between dicamba and glyphosate since that study was also submitted on Nov 15th, 2016 which clearly shows no impact so that we can move forward to enablement of tank mixing with our Xtendimax product.

Please confirm that this can be done in the 3 months that you have suggested.

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Thursday, February 02, 2017 11:33 AM
To: BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Cc: Rowland, Grant <Rowland.Grant@epa.gov>
Subject: 524-616: Roundup Xtend R350 - request for renegotiating the PRIA due date

Hello, Tina,

Per our phone conversation this morning, we are still not able to finish our decision on this action. Two pieces of data crucial to the decision are still in review with EFED's contractor, and are expected back by March. Given this, we'd like to request to renegotiate the PRIA due date from the current date of February 6, 2017 to a new due date of April 30, 2017. Does Monsanto agree to this new date? Please reply to this email as soon as possible so that I may move the paperwork forward.

Thank you,
Kay

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Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 10/21/2016 7:13:22 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
CC: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]; NYANGULU, JAMES M [AG/1920] [james.m.nyangulu@monsanto.com]
Subject: Xtendimax supplemental labels for new dicamba use on DT soy and cotton
Attachments: 000524-00617.20161021.XtendimaxDTCottonSupLabel.pdf; 000524-00617.20161021.XtendimaxDTSoybeanSupLabel.pdf

Kay,

I am happy to report that the submission has went in through the portal. Please find attached the DT cotton and soy supplemental labels that were submitted.

Please let me know if you want anything from our submission hand delivered to you by James.

Thanks for the communication this week. It is much appreciated.

Jerry

*Jerry W. Cubbage, Ph.D.
Monsanto Company
800 N. Lindbergh Blvd.
C3518N/C3NA
Creve Coeur, MO 63167
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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using XtendiMax™ With VaporGrip™ Technology as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on xx/xx/xxxx and must not be used or distributed after this date.

XtendiMax™ With VaporGrip™ Technology

EPA Reg. No. 524-617

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON BOLLGARD II® XTENDFLEX® COTTON

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II®, Roundup Ready®, Roundup Ready 2 Xtend® and XtendFlex® are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

BOLLGARD II® XTENDFLEX® COTTON CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON THAT IS NOT DICAMBA TOLERANT, INCLUDING COTTON WITH A

TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Bollgard II® XtendFlex® Cotton can be obtained from your seed supplier or Monsanto representative. Bollgard II® XtendFlex® Cotton must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of XtendiMax™ With VaporGrip™ Technology that may be made to Bollgard II® XtendFlex® Cotton during the cropping season. DO NOT combine these instructions with other instructions in the "COTTON" Section of any other XtendiMax™ With VaporGrip™ Technology label for use over crops that do not contain the dicamba tolerance trait.

Note: Bollgard II® XtendFlex® Cotton and methods of controlling weeds and applying dicamba in a Bollgard II® XtendFlex® Cotton crop are protected under U.S. patent law. A license to use Bollgard II® XtendFlex® Cotton seed must be obtained prior to use. No license to use Bollgard II® XtendFlex® Cotton is granted or implied with the purchase of this herbicide product. Bollgard II® XtendFlex® Cotton is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Bollgard II® XtendFlex® Cotton.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the XtendiMax™ With VaporGrip™ Technology product label for important use information. The directions found on this supplemental label are controlling, where inconsistencies are found with any other product labeling.

Training and education on proper pesticide application is encouraged. Applicators should visit [INSERT URL] for training information and opportunities relevant to this product.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

XtendiMax™ With VaporGrip™ Technology is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions:

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS: Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the

following table for maximum application rates of this product with Bollgard II® XtendFlex® Cotton.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications from emergence up to 7 days pre-harvest	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the XtendiMax™ With VaporGrip™ Technology label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Bollgard II® XtendFlex® Cotton. Refer to the “WEEDS CONTROLLED” section of the label booklet for XtendiMax™ With VaporGrip™ Technology for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre. Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Bollgard II® XtendFlex® Cotton. In-crop applications of this product can be made from emergence up to 7 days prior to harvest. The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications. A pre-harvest application of this product may be made up to 7 days before harvest.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to Bollgard II® XtendFlex® Cotton. The symptoms usually appear as necrotic spots on fully expanded leaves. To reduce the incidence and severity of the necrosis, consider increasing the spray volume to 15 GPA or greater and lower adjuvant rates. EC-based products that are tank

mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS:

- The combined total applied from crop emergence up to 7 days prior to harvest must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb a.e. dicamba).
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 44 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre.
- Allow at least 7 days between applications and allow at least 7 days between final application and harvest or feeding of cottonseed and cotton gin by-products.

TANK-MIXING INSTRUCTIONS

XtendiMax™ With VaporGrip™ Technology may only be tank-mixed with products that are listed at [INSERT URL HERE]. DO NOT tank mix any product with XtendiMax™ With VaporGrip™ Technology unless:

1. You check the list of products at [INSERT URL HERE] no more than 7 days before applying XtendiMax™ With VaporGrip™ Technology; and
2. The intended tank-mix products are identified on that website; and
3. The intended products are not prohibited on either this supplemental label or the label of the tank mix product.
4. Additional Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents (DRAs) can minimize the percentage of driftable fines. However, the applicator must check [INSERT URL] to determine if the DRA is listed and check with the DRA manufacturer to determine if the DRAs will work effectively with the approved spray nozzle, spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same sites of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than 22 fluid ounces per acre (0.5 lb a.e./A) of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of XtendiMax™ With VaporGrip™ Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT TO BOLLGARD II® XTENDFLEX® COTTON USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

MANAGING OFF-TARGET MOVEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following off-target movement management requirements must be followed.

Controlling Droplet Size

Off-target movement potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce off-target movement potential, but will not prevent off-target movement if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** A list of approved nozzles may be found at [INSERT URL HERE]. Do not use any other nozzle and pressure combination not specifically listed on this website.
- **Hooded Sprayers.** Using a hooded sprayer in combination with approved nozzles may further reduce off-target movement potential.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for off-target movement.

Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation. Larger

droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Do not apply this product during a temperature inversion. Off-target movement potential can be high during a temperature inversion.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will often dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Off-target movement potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For XtendiMax™ With VaporGrip™ Technology wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.
3-10 mph	Optimum application conditions for XtendiMax™ With VaporGrip™ Technology provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward non-target sensitive crops.
> 15 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect off-target movement.

PROTECTION OF SENSITIVE AREAS

Maintain a 110 foot downwind buffer (when applying 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying 44 fluid ounces of this product per acre) between the last treated row and the closest downwind edge (in the direction in which the wind is blowing) of any area less the distance of any of the adjacent areas specified below.

To maintain this required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.

The following areas may be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces and fallow.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops in the buffer distance calculation, the applicator must confirm such crops are present in the buffer distance prior to application.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Non-target Susceptible Crops

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

- Do not apply under circumstances where off-target movement may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.
- Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants because severe injury or destruction may result, including plants in a greenhouse.
- Small amounts of dicamba that may not be visible may injure susceptible broadleaf plants.
- Applicators are required to ensure that they are aware of the proximity to non-target susceptible crops, and to avoid potential adverse effects from off-target movement of XtendiMax™ With VaporGrip™ Technology.

Before making an application, the applicator must survey the application site for neighboring non-target susceptible crops. The applicator must also consult sensitive crop registries to identify any commercial specialty or certified organic crops that may be located near the application site.

DO NOT APPLY this product when the wind is blowing toward adjacent commercially grown sensitive crops. Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba.

Application Awareness

AVOIDING OFF-TARGET MOVEMENT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local regulation of off-target movement.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the “Non-target Susceptible Crops” section of this label for more information).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS

No rotational cropping restrictions apply when rotating to Roundup Ready® 2 Xtend™ Soybeans or Bollgard II® XtendFlex® Cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for XtendiMax™ With VaporGrip™ Technology applications of 33 fluid ounces per acre or less

For corn, cotton (except Bollgard II® XtendFlex® Cotton), sorghum, and soybean (except Roundup Ready® 2 Xtend™ Soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per

acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 33 fluid ounces and up to 44 fluid ounces of XtendiMax™ With VaporGrip™ Technology per acre

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® XtendFlex® Cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready® 2 Xtend™ Soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, tort, or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops within the Roundup Ready Xtend® Crop System, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF

THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using XtendiMax™ With VaporGrip™ Technology as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on xx/xx/xxxx and must not be used or distributed after this date.

XtendiMax™ With VaporGrip™ Technology

EPA Reg. No. 524-617

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON ROUNDUP READY 2 XTEND® SOYBEANS

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II®, Roundup Ready®, Roundup Ready 2 Xtend®, XtendiMax™, XtendFlex® and VaporGrip™ are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

ROUNDUP READY 2 XTEND® SOYBEANS CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO SOYBEANS THAT ARE NOT DICAMBA TOLERANT, INCLUDING

SOYBEANS WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Roundup Ready 2 Xtend® soybeans can be obtained from your seed supplier or Monsanto representative. Roundup Ready 2 Xtend® soybeans must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of XtendiMax™ With VaporGrip™ Technology that may be made to Roundup Ready 2 Xtend® Soybeans during the cropping season. DO NOT combine these instructions with other instructions in the “SOYBEAN” Section of any other XtendiMax™ With VaporGrip™ Technology label for use over crops that do not contain the dicamba tolerance trait.

Note: Roundup Ready 2 Xtend® Soybeans and methods of controlling weeds and applying dicamba in a Roundup Ready 2 Xtend® Soybean crop are protected under U.S. patent law. No license to use Roundup Ready 2 Xtend® Soybeans are granted or implied with the purchase of this herbicide product. Roundup Ready 2 Xtend® Soybeans are owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Roundup Ready 2 Xtend® Soybeans.

See the “PRODUCT INFORMATION” and “APPLICATION EQUIPMENT AND TECHNIQUES” sections of the XtendiMax™ With VaporGrip™ Technology product label for important use information. The directions found on this supplemental label are controlling, where inconsistencies are found with any other product labeling.

Training and education on proper pesticide application is encouraged. Applicators should visit [INSERT URL] for training information and opportunities relative to this product.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

XtendiMax™ With VaporGrip™ Technology is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS

Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches.

Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend® Soybeans.

Maximum Application Rates	
Combined total per year for all applications	88 fluid ounces per acre (2.0 lb. a.e. dicamba per acre)
Total of all Burndown/Early preplant, Preplant, At-Planting, and Preemergence applications	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Total of all In-crop applications from emergence up to and including beginning bloom (R1 stage soybeans)	44 fluid ounces per acre (1.0 lb. a.e. dicamba per acre)
Maximum In-crop, single application	22 fluid ounces per acre (0.5 lb. a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the XtendiMax™ With VaporGrip™ Technology label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend® Soybeans. Refer to the “WEEDS CONTROLLED” section of the label booklet for XtendiMax™ With VaporGrip™ Technology for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 44 fluid ounces (1.0 lb a.e. dicamba) per acre per season. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 44 fluid ounces (1.0 lb a.e. dicamba) per acre. Do not apply less than 22 fluid ounces (0.5 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend® Soybeans. In-crop applications of this product can be made from emergence (cracking) up to and including beginning bloom (R1 growth stage of soybeans). Do not make in-crop applications of this product after beginning bloom (R1 growth stage of soybeans). The maximum and minimum rate for any single, in-crop application is 22 fluid ounces (0.5 lb a.e. dicamba) per acre. Using the appropriate application rate may reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height.

A second application of this product up to the R1 crop growth stage may be necessary to control new flushes of weeds. Allow at least 7 days between applications. For best results, apply XtendiMax™ With VaporGrip™ Technology after some weed re-growth has occurred.

Application of this product postemergent and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in Roundup Ready 2 Xtend® Soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS:

- The combined total application rate from crop emergence up to R1 must not exceed 44 fluid ounces (1.0 lb. a.e. dicamba) per acre.
- The maximum single, in-crop application rate must not exceed 22 fluid ounces (0.5 lb. a.e. dicamba) per acre.
- The combined total per year for all applications must not exceed 88 fluid ounces (2.0 lb. a.e. dicamba) per acre.
- Allow at least 7 days between final application and harvest or feeding of soybean forage.
- Allow at least 14 days between final application and harvest or feeding of soybean hay.

TANK-MIXING INSTRUCTIONS

XtendiMax™ With VaporGrip™ Technology may only be tank-mixed with products that are listed at [INSERT URL HERE]. DO NOT tank mix any product with XtendiMax™ With VaporGrip™ Technology unless:

1. You check the list of products at [INSERT URL HERE] no more than 7 days before applying XtendiMax™ With VaporGrip™ Technology; and
2. The intended tank-mix products are identified on that website; and
3. The intended products are not prohibited on either this supplemental label or the label of the tank mix product.
4. Additional Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents (DRAs) can minimize the percentage of driftable fines. However, the applicator must check [INSERT URL] to determine if the DRA is listed and check with the DRA manufacturer to determine if the DRAs will work effectively with the approved spray nozzle, spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same sites of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Do not use less than 22 fluid ounces per acre (0.5 lb a.e./A) of this product in a single application. Using the appropriate application rate can minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of XtendiMax™ With VaporGrip™ Technology for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, agricultural retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND® SOYBEANS USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

MANAGING OFF-TARGET MOVEMENT

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following off-target movement management requirements must be followed.

Controlling Droplet Size

Off-target movement potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce off-target movement potential, but will not prevent off-target movement if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** A list of approved nozzles may be found at [INSERT URL HERE]. Do not use any other nozzle and pressure combination not specifically listed on this website.
- **Hooded Sprayers.** Using a hooded sprayer in combination with approved nozzles may further reduce off-target movement potential.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for off-target movement.

Temperature and Humidity

When making applications in low relative humidity or temperatures above 91 degrees Fahrenheit, set up equipment to produce larger droplets to compensate for evaporation. Larger

droplets have a lower surface to volume ratio and can be impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Do not apply this product during a temperature inversion. Off-target movement potential can be high during a temperature inversion.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They can begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will often dissipate with increased winds (above 3 mph) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Off-target movement potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For XtendiMax™ With VaporGrip™ Technology wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.
3-10 mph	Optimum application conditions for XtendiMax™ With VaporGrip™ Technology provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward non-target sensitive crops.
> 15 mph	Do not apply XtendiMax™ With VaporGrip™ Technology.

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect off-target movement.

PROTECTION OF SENSITIVE AREAS

Maintain a 110 foot downwind buffer (when applying 22 fluid ounces of this product per acre) or a 220 foot downwind buffer (when applying 44 fluid ounces of this product per acre) between the last treated row and the closest downwind edge (in the direction in which the wind is blowing) of any area less the distance of any of the adjacent areas specified below.

To maintain this required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.

The following areas may be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces, and fallow.
- Planted agricultural fields containing: corn, dicamba tolerant cotton, dicamba tolerant soybean, sorghum, proso millet, small grains and sugarcane. If the applicator intends to include such crops in the buffer distance calculation, the applicator must confirm such crops are present in the buffer distance prior to application.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, silo, or other man made structure with walls and or roof.

Non-target Susceptible Crops

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

- Do not apply under circumstances where off-target movement may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.
- Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants because severe injury or destruction may result, including plants in a greenhouse.
- Small amounts of dicamba that may not be visible may injure susceptible broadleaf plants.
- Applicators are required to ensure that they are aware of the proximity to non-target susceptible crops, and to avoid potential adverse effects from off-target movement of XtendiMax™ with VaporGrip™ Technology.

Before making an application, the applicator must survey the application site for neighboring non-target susceptible crops. The applicator must also consult sensitive crop registries to identify any commercial specialty or certified organic crops that may be located near the application site.

DO NOT APPLY this product when the wind is blowing toward adjacent commercially grown sensitive crops. Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba.

Application Awareness

AVOIDING OFF-TARGET MOVEMENT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide regulations, including any state or local regulation of off-target movement.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the “Non-target Susceptible Crops” section of this label for more information).

Clean equipment immediately after using this product using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend® Soybeans or Bollgard II® XtendFlex® Cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for XtendiMax™ With VaporGrip™ Technology applications of 33 fluid ounces per acre or less

For corn, cotton (except Bollgard II® XtendFlex® Cotton), sorghum, and soybean (except Roundup Ready 2 Xtend® Soybeans), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 11 fluid ounces of this

product applied per acre east of the Mississippi River and 22 days for every 11 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 33 fluid ounces and up to 44 fluid ounces of XtendiMax™ With VaporGrip™ Technology per acre

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® XtendFlex® Cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend® Soybeans) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 22 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 22 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY PRODUCTS THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH PRODUCT IS USED ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH PRODUCT ALONE OR IN A TANK MIX WITH XTENDIMAX™ WITH VAPORGRIP™ TECHNOLOGY.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, tort, or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on crops within the Roundup Ready® Xtend™ Crop System, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR

ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 11/18/2016 7:06:34 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]
CC: NYANGULU, JAMES M [AG/1920] [james.m.nyangulu@monsanto.com]
Subject: Roundup Xtend (EPA Reg. No 524-616) Fast Track Amendment Submission

Kay and Grant,

I wanted to make you aware that yesterday (November 17, 2016) Monsanto submitted through the electronic portal a label extension to add dicamba tolerant soy and cotton uses as a fast track amendment to Roundup Xtend (M1769 Premix Herbicide) EPA Reg. No. 524-616.

We hope you can move quickly to finalized this label extension.

Please let me know if you have any questions.

Have great weekend.

Thanks

Jerry

*Jerry W. Cubbage, Ph.D.
Monsanto Company
800 N. Lindbergh Blvd.
C3518N/C3NA
Creve Coeur, MO 63167
Office: 314-694-7350
Cell: 636-236-8894
Email: jerry.w.cubbage@monsanto.com*

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Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 11/18/2016 8:50:34 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; NYANGULU, JAMES M [AG/1920] [james.m.nyangulu@monsanto.com]
Subject: RE: Roundup Xtend (EPA Reg. No 524-616) Fast Track Amendment Submission

Kay,

I hate to hear that you are sick. We submitted on 11/14/2016 the outstanding vegetative vigor study on the 8 additional crop species (MRID 50103801). This data is confirmatory to the most sensitive crop vegetative vigor study on tomatoes and soybean (MRID 49953901) that we submitted on 6/22/2016. Together, the complete 10 crop species vegetative vigor data supports that there are no combined effects between glyphosate and dicamba.

Best wishes on feeling better quickly.

Thanks
Jerry

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Friday, November 18, 2016 1:37 PM
To: CUBBAGE, JERRY W [AG/1000]
Cc: Rowland, Grant ; NYANGULU, JAMES M [AG/1920]
Subject: Re: Roundup Xtend (EPA Reg. No 524-616) Fast Track Amendment Submission

Hi, Jerry,

You have a pending PRIA action on that, and I thought we were waiting for some additional plant data. I'm actually out of the office in sick leave now, but I will look into this further next week.

Thank you,
Kay

Sent from my iPhone

On Nov 18, 2016, at 2:06 PM, CUBBAGE, JERRY W [AG/1000] <jerry.w.cubbage@monsanto.com> wrote:

Kay and Grant,

I wanted to make you aware that yesterday (November 17, 2016) Monsanto submitted through the electronic portal a label extension to add dicamba tolerant soy and cotton uses as a fast track amendment to Roundup Xtend (M1769 Premix Herbicide) EPA Reg. No. 524-616.

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Please let me know if you have any questions.

Have great weekend.

Thanks

Jerry

Jerry W. Cubbage, Ph.D.

Monsanto Company

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Email: jerry.w.cubbage@monsanto.com

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Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 2/10/2016 3:14:54 PM
To: Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Cowles, James [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=684502c4acad4894b1fed6fae1c6d74d-Cowles, James]; Corbin, Mark [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1db182663b134e46b3fec580f8e0b5f2-Mark Corbin]; BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Subject: Dicamba mtg request

Importance: High

All:

We would like to meet with EFED next week (Thursday afternoon?) for one hour.

Agenda:

Technical feedback re volatility

DCSA status

Thanks,

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

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Message

From: CUBBAGE, JERRY W [AG/1000] [jerry.w.cubbage@monsanto.com]
Sent: 11/30/2016 1:39:03 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
Subject: FeXapan (EPA Reg. No. 352-913) 100% Repack Letter
Attachments: FeXapan_100_Repack_letter.pdf

Kay,

Good morning, it is my understanding that Dupont submitted a fast track amendment to add dicamba-tolerant soy and cotton uses to their FeXapan registration on Wednesday, November 23, 2016.

Please find attached a letter from Monsanto confirming DuPont's intent to repackage Monsanto's Xtendimax (EPA Reg. No. 524-617) to FeXapan Plus VaporGrip Technology (EPA Reg. No. 352-913) under formulator's exemption.

Please let me know if you have any questions.

Have a great day.

Cheers
Jerry

*Jerry W. Cubbage, Ph.D.
Monsanto Company
800 N. Lindbergh Blvd.
C3518N/C3NA
Creve Coeur, MO 63167
Office: 314-694-7350
Cell: 636-236-8894
Email: jerry.w.cubbage@monsanto.com*

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MONSANTO



November 30, 2016

MONSANTO COMPANY
1300 I (Eye) Street, NW
Suite 450 East
Washington, D.C. 20005
<http://www.monsanto.com>

Jerry W. Cabbage
Regulatory Affairs Manager
314-694-7350

Document Processing Desk (AMEND)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
One Potomac Yard
2777 South Crystal Drive, Room S4900
Arlington, VA 22202-4501

Attention: Kathryn Montague
PM Team 23

**Subject: XtendiMax™ With VaporGrip™ Technology (EPA Reg. No. 524-617) as 100%
Repack to FeXapan Plus VaporGrip Technology (EPA Reg. No. 352-913).**

Dear Ms. Montague:

Monsanto understands that Dupont intends to repackage XtendiMax™ With VaporGrip™ Technology (EPA Reg. No. 524-617) as FeXapan™ Plus VaporGrip™ Technology (EPA Reg. No. 352-913) under formulator's exemption.

Monsanto has no objection to this intent.

Should you require any additional information or have any questions regarding this submission, please contact, Jerry Cabbage by direct telephone (314)694-7350, or electronic mail at jerry.w.cabbage@monsanto.com.

Sincerely,

Jerry W. Cabbage, Ph.D.
Regulatory Affairs Manager

Cc: File copy

Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 3/31/2016 12:01:36 PM
To: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
Subject: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf
Attachments: M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

We're cleaning things up, but please see our comments re

110 ft buffer: *addition of "from" could be read to mean that you must have 110' between spray and field edge regardless of the "exceptions" (adjacent road, planted field any of the exceptions). That could result in 110' + the distance of any the excepted areas. Here is a proposed fix:*

"Maintain a 110 foot in-field buffer (when applying 16 fl oz of this product per acre), or a 220 foot in-field buffer (when applying 32 fl oz of this product per acre) on from all outer edges of the field, less the distance of any of the adjacent areas specified below."

Adjacent ag fields: *it doesn't make sense that non-broadleaves with registered uses can be included in the buffer distance calculation, but if a neighbor plants the exact same gm dicamba tolerant crops and it is adjacent it can't be. We strongly suggest the following:*

Planted agricultural fields containing crops with a natural tolerance to dicamba including corn, sorghum, proso millet, small grains and sugarcane and crops containing a dicamba tolerance gene including Roundup Ready II Xtend soybeans and Bollgard II Xtendflex Cotton.

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SUPPLEMENTAL LABELING



READ THE ENTIRE LABEL FOR M1691 HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using M1691 Herbicide as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

M1691

Herbicide

EPA Reg. No. 524-582

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON ROUNDUP READY 2 XTEND™ SOYBEAN

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II® Roundup Ready®, Roundup Ready 2 Xtend™ and XtendFlex™ are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

ROUNDUP READY 2 XTEND™ SOYBEAN CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO SOYBEANS THAT ARE NOT DICAMBA TOLERANT, INCLUDING SOYBEANS WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT

NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Roundup Ready 2 Xtend™ soybean can be obtained from your seed supplier or Monsanto representative. Roundup Ready 2 Xtend™ soybean must be purchased from an authorized licensed seed supplier.


The instructions contained in this Monsanto Supplemental Label include all applications of M1691 Herbicide that may be made to Roundup Ready 2 Xtend™ soybean during the complete cropping season. DO NOT combine these instructions with other instructions in the “SOYBEAN” Section of any other M1691 Herbicide label for use over crops that do not contain the dicamba tolerance trait.

Note: Roundup Ready 2 Xtend™ soybean and methods of controlling weeds and applying dicamba in a Roundup Ready 2 Xtend™ soybean crop are protected under U.S. patent law. No license to use Roundup Ready 2 Xtend™ soybean is granted or implied with the purchase of this herbicide product. Roundup Ready 2 Xtend™ soybean is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Roundup Ready 2 Xtend™ soybean.

See the “PRODUCT INFORMATION” and “APPLICATION EQUIPMENT AND TECHNIQUES” sections of the M1691 Herbicide product label for important product use information. The directions found on this supplemental label are controlling, where inconsistencies are found with the label booklet.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

M1691 Herbicide is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

 **USE INSTRUCTIONS:** Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend™ soybeans.

Maximum Application Rates	
Combined total per year for all applications	64 fluid ounces per acre (2.0 lb a.e. dicamba per acre)
Total of all Burndown/Early preplant, Preplant, At-Planting, and Preemergence applications	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)

Total of all In-crop applications from emergence up to and including beginning bloom (R1 stage soybeans)	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Maximum In-crop, single application	16 fluid ounces per acre (0.5 lb a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the M1691 Herbicide label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend™ soybean. Refer to the “WEEDS CONTROLLED” section of the label booklet for M1691 Herbicide for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 32 fluid ounces (1.0 lb a.e. dicamba) per acre per season. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend™ soybean. In-crop applications of this product can be made from emergence (cracking) up to and including beginning bloom (R1 growth stage of soybeans). The maximum rate for any single, in-crop application must not exceed 16 fluid ounces (0.5 lb a.e. dicamba) per acre. This is also the minimum single application rate in order to reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. A second application of this product up to the R1 crop growth stage may be necessary to control new flushes of weeds. Allow at least 7 days between applications. For best results, apply M1691 Herbicide after some weed re-growth has occurred.

Application of this product postemergent and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in RR2X soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS: The combined total application rate from crop emergence up to R1 must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre. The maximum single, in-crop application rate must not exceed 16 fluid ounces (0.5 lb a.e. dicamba). The combined total per year for all applications must not exceed 64 fluid ounces (2.0 lb a.e. dicamba) per acre.

Allow at least 7 days between final application and harvest or feeding of soybean forage. Allow at least 14 days between final application and harvest or feeding of soybean hay.

TANK-MIXING INSTRUCTIONS:

RESTRICTIONS:

- **DO NOT TANK MIX ANY OTHER HERBICIDE WITH M1691 HERBICIDE.**

TANK MIXING INSTRUCTIONS FOR ADJUVANTS

M1691 Herbicide may only be tank-mixed with adjuvants that have been tested and found by EPA not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide. A list of those EPA approved adjuvants and use rates may be found at www.M1691tankmix.com. DO NOT tank mix any adjuvant with M1691 Herbicide unless:

1. You check the list of EPA approved adjuvants found not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide at www.M1691tankmix.com no more than 7 days before applying M1691 Herbicide; and
2. The intended adjuvant tank-mix with M1691 Herbicide is identified on that list of tested and approved adjuvants; and
3. The intended adjuvant tank-mix with M1691 Herbicide is not prohibited on this label.
4. Additional Adjuvant Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same modes of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Use a minimum of 0.5 lb a.e./A (16 fl oz/A) of this product in a single application in order to minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued availability of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of M1691 Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES:

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND™ SOYBEAN USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed.

Controlling Droplet Size

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use the Tee Jet® TTI11004 nozzle with a maximum operating pressure of 63 psi when applying M1691 Herbicide. Do not use any other nozzle and pressure combination not specifically allowed by this label.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and are impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft

smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

- The inversion will dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction


- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For M1691 Herbicide wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply M1691 Herbicide
3-10 mph	Optimum M1691 Herbicide application conditions provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward sensitive areas
> 15 mph	Do not apply M1691 Herbicide


NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Threatened and Endangered Species

 ~~Maintain a 110 foot buffer (when applying 16 fl oz of this product per acre), or a 220 foot buffer (when applying 32 fl oz of this product per acre) on all outer edges of the field.~~

To maintain the required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance ~~of a sensitive area.~~
- The following areas may be included in the buffer distance calculation when adjacent to field edges:
 - Roads, paved or gravel surfaces.
 -  ~~Intert agricultural fields containing crops that are tolerant to dicamba including non-broadleaf plants like corn, wheat, dicamba-tolerant soybeans and dicamba-tolerant cotton.~~
 - Agricultural fields that have been prepared for planting.
 - Areas covered by the footprint of a building, shade house, silo, feed crib, or other man made structure with walls and or roof.

Non-target Susceptible Plants

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Avoid contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to

ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1691 Herbicide. The applicator must survey the application site for neighboring sensitive areas prior to application. The applicator also should consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is blowing toward adjacent commercially grown sensitive crops.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the "Sensitive Areas" section of this label for more information).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS:

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend™ soybean or Bollgard II® XtendFlex™ cotton. For other crops the interval between application and planting

rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen.. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for M1691 Herbicide applications of 24 fluid ounces per acre or less:

For corn, cotton (except Bollgard II® Xtendflex™ cotton), sorghum, and soybean (except Roundup Ready 2 Xtend™ soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 8 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 8 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 24 fluid ounces and up to 32 fluid ounces of M1691 Herbicide per acre:

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® Xtendflex™ cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend™ soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 16 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 16 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range

specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on Roundup Ready Xtend crops, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 3/31/2016 12:38:44 PM
To: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

Sorry for the add'l email, but we'd ask EPA to note the language already written by the agency elsewhere in the label (emphasis added):

FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

From: JENKINS, DANIEL J [AG/1920]
Sent: Thursday, March 31, 2016 8:02 AM
To: 'Rowland, Grant'; 'Kenny, Daniel'; 'Montague, Kathryn V.'
Subject: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

We're cleaning things up, but please see our comments re

110 ft buffer: *addition of "from" could be read to mean that you must have 110' between spray and field edge regardless of the "exceptions" (adjacent road, planted field any of the exceptions). That could result in 110' + the distance of any the excepted areas. Here is a proposed fix:*

"Maintain a 110 foot in-field buffer (when applying 16 fl oz of this product per acre), or a 220 foot in-field buffer (when applying 32 fl oz of this product per acre) on from all outer edges of the field, less the distance of any of the adjacent areas specified below."

Adjacent ag fields: *it doesn't make sense that non-broadleafs with registered uses can be included in the buffer distance calculation, but if a neighbor plants the exact same gm dicamba tolerant crops and it is adjacent it can't be. We strongly suggest the following:*

Planted agricultural fields containing crops with a natural tolerance to dicamba including corn, sorghum, proso millet, small grains and sugarcane and crops containing a dicamba tolerance gene including Roundup Ready II Xtend soybeans and Bollgard II Xtendflex Cotton.

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Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 1/4/2017 5:46:21 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
Subject: RE: Dicamba

Thanks Kay;

Since we do not have much time can we not discuss the volatility protocol today?? We have been working with all of our partners to ensure that they are following the same stewardship as us, only moving those products forward that will not cause an issue from a volatility stand point.

We would like to discuss a couple of items on the newly approved engenia label on differences that were not reflected on our Xtendimax label that can apply to our label too. And an update on the Round up Xtend data review.

Thanks and talk to you soon

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Tuesday, January 03, 2017 4:29 PM
To: BHAKTA, TINA [AG/1000]
Subject: RE: Dicamba

Hi, Tina,

It will be RD (me, Dan, Grant) and EFED (Mark Corbin, Monica Wait, Chuck Peck, and possibly others). Based on our previous conversations, I believe we should be discussing:

- Revisions to Appendix A (the drift protocol for tank mixes) to use data for M1768 as the "baseline" vs data for M1691
- Possibility and process for adding a volatility protocol and testing requirement for tank mix partners
- Status of the tank mix data you've already submitted

Does that agree with your understanding/expectations?

Best Regards,
Kay

From: BHAKTA, TINA [AG/1000] [mailto:tina.bhakta@monsanto.com]
Sent: Tuesday, January 03, 2017 4:48 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: RE: Dicamba

Hi Kay,

Happy new year! I hope you had a good break.

Can you let us know who else will be attending this call? Is this to discuss the tank mixing protocol?

Thanks

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]

Sent: Tuesday, January 03, 2017 2:03 PM

To: NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>; BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>

Subject: RE: Dicamba

Hi, James,

We can't use Webex, please call us using the following information:

Conference Line / Ex. 6

-----Original Appointment-----

From: NYANGULU, JAMES M [AG/1920] [<mailto:james.m.nyangulu@monsanto.com>]

Sent: Wednesday, December 14, 2016 1:34 PM

To: NYANGULU, JAMES M [AG/1920]; Montague, Kathryn V.; Kenny, Daniel; BHAKTA, TINA [AG/1000]

Subject: Dicamba

When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: WebEx

When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: WebEx

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

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Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 3/31/2016 2:02:59 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf
Attachments: M1691 Herbicide DT soybean Label_March_31_2016_revisions_finaldraft_URL.PDF; M1691 Herbicide DGT Cotton_Label_March_31_2016_revisions_finaldraft_URL.PDF

Dan:

Per our conversation. Please see attached. Note we had to revert to the [insert URL here] instead of the website address for tank mixes, bc it is not quite ready yet, but will be soon.

Thank you,

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Thursday, March 31, 2016 8:49 AM
To: JENKINS, DANIEL J [AG/1920]; Rowland, Grant; Kenny, Daniel
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

Hi, Dan,

We're looking into these, and will get back to you ASAP.

One question on the ag crops, though - how would the applicator know that adjacent cotton or soybeans are the tolerant versions?

Thanks,
Kay

From: JENKINS, DANIEL J [AG/1920] [mailto:daniel.j.jenkins@monsanto.com]
Sent: Thursday, March 31, 2016 8:02 AM
To: Rowland, Grant <Rowland.Grant@epa.gov>; Kenny, Daniel <Kenny.Dan@epa.gov>; Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Subject: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR M1691 HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using M1691 herbicide as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on xx/xx/xxxx and must not be used or distributed after this date.

M1691

HERBICIDE

EPA Reg. No. 524-582

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON BOLLGARD II® XTENDFLEX COTTON

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II® Roundup Ready®, Roundup Ready 2 Xtend™ and XtendFlex™ are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

BOLLGARD II XTENDFLEX COTTON CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO COTTON THAT IS NOT DICAMBA TOLERANT, INCLUDING COTTON WITH A

TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Bollgard II® XtendFlex™ cotton can be obtained from your seed supplier or Monsanto representative. Bollgard II® XtendFlex™ cotton must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of M1691 herbicide that may be made to Bollgard II® XtendFlex™ cotton during the complete cropping season. DO NOT combine these instructions with other instructions in the "COTTON" Section of any other M1691 herbicide label for use over crops that do not contain the dicamba tolerance trait.

Note: Bollgard II® XtendFlex™ cotton and methods of controlling weeds and applying dicamba in a Bollgard II® XtendFlex™ cotton crop are protected under U.S. patent law. A license to use Bollgard II® XtendFlex™ cotton seed must be obtained prior to use. No license to use Bollgard II® XtendFlex™ cotton is granted or implied with the purchase of this herbicide product. Bollgard II® XtendFlex™ cotton is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Bollgard II® XtendFlex™ cotton.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the M1691 Herbicide product label for important product use information. The directions found on this supplemental label are controlling, where inconsistencies are found with the label booklet.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop).

M1691 Herbicide is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions:

- Do not apply this product aurally.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS: Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Bollgard II® XtendFlex™ cotton.

Maximum Application Rates	
Combined total per year for all applications	64 fluid ounces per acre (2.0 lb a.e. dicamba per acre)
Total of all Preplant, At-Planting, and Preemergence applications	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Total of all In-crop applications from emergence up to 7 days pre-harvest	64 fluid ounces per acre (2.0 lb a.e. dicamba per acre)
Maximum In-crop, single application	16 fluid ounces per acre (0.5 lb a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the M1691 herbicide label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting of Bollgard II® XtendFlex™ cotton. Refer to the “WEEDS CONTROLLED” section of the label booklet for M1691 herbicide for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 32 fluid ounces (1.0 lb a.e. dicamba) per acre per year. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre. If applying a spring preplant treatment following application of a fall preplant (postharvest) treatment, then the combination of both treatments may not exceed 2 pounds a.e. dicamba per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Bollgard II® XtendFlex™ cotton. In-crop applications of this product can be made from emergence up to 7 days prior to harvest. The maximum rate for any single, in-crop application must not exceed 16 fluid ounces (0.5 lb a.e. dicamba) per acre. This is also the minimum single application rate in order to reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. Sequential applications of this product may be necessary to control new flushes of weeds or on tough-to-control weeds. Allow at least 7 days between applications. A pre-harvest application of this product may be made up to 7 days before harvest.

Postemergence applications of this product mixed with adjuvants may cause a leaf response to Bollgard II® XtendFlex™ cotton. The symptoms usually appear as necrotic spots on fully expanded leaves. To reduce the incidence and severity of the necrosis, consider increasing the spray volume to 15 GPA or greater and lower adjuvant rates. EC-based products that are tank mixed with products containing dicamba may increase the severity of the leaf damage.

RESTRICTIONS: The combined total applied from crop emergence up to 7 days prior to harvest must not exceed 64 fluid ounces (2.0 lb a.e. dicamba) per acre. The maximum single, in-crop application rate must not exceed 16 fluid ounces (0.5 lb a.e. dicamba). The combined total per year for all applications must not exceed 64 fluid ounces (2.0 lb a.e. dicamba) per acre. For example, if a preplant application of 32 fluid ounces (1.0 lb a.e. dicamba) per acre was made, then the combined total in-crop applications must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre.

Allow at least 7 days between applications and allow at least 7 days between final application and harvest or feeding of cottonseed and cotton gin by-products.

TANK-MIXING INSTRUCTIONS:

RESTRICTIONS:

- **DO NOT TANK MIX ANY OTHER HERBICIDE WITH M1691 HERBICIDE.**

TANK MIXING INSTRUCTIONS FOR ADJUVANTS

M1691 Herbicide may only be tank-mixed with adjuvants that have been tested and found by EPA not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide. A list of those EPA approved adjuvants and use rates may be found at [INSERT URL HERE]. DO NOT tank mix any adjuvant with M1691 Herbicide unless:

1. You check the list of EPA approved adjuvants found not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide at [INSERT URL HERE] no more than 7 days before applying M1691 Herbicide; and
2. The intended adjuvant tank-mix with M1691 Herbicide is identified on that list of tested and approved adjuvants; and
3. The intended adjuvant tank-mix with M1691 Herbicide is not prohibited on this label.
4. Additional Adjuvant Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same modes of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Use a minimum of 0.5 lb a.e./A (16 fl oz/A) of this product in a single application in order to minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued availability of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of M1691 Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES:

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND™ SOYBEAN USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed .

Controlling Droplet Size

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use the Tee Jet® TT11004 nozzle with a maximum operating pressure of 63 psi when applying M1691 Herbicide. Do not use any other nozzle and pressure combination not specifically allowed by this supplemental label.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and are impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.
- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For M1691 Herbicide wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply M1691 Herbicide
3-10 mph	Optimum M1691 Herbicide application conditions provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward sensitive areas
> 15 mph	Do not apply M1691 Herbicide

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Threatened and Endangered Species

Maintain a 110 foot buffer (when applying 16 fl oz of this product per acre), or a 220 foot buffer (when applying 32 fl oz of this product per acre) from all outer edges of the field, less the distance of any of the adjacent areas specified below.

To maintain the required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.
- The following areas may be included in the buffer distance calculation when adjacent to field edges:
 - Roads, paved or gravel surfaces.
 - Planted agricultural fields containing corn, sorghum, proso millet, small grains and sugarcane.

- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, shade house, silo, feed crib, or other man made structure with walls and or roof.

Non-target Susceptible Plants

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1691 Herbicide. Before making an application, the applicator must survey the application site for neighboring sensitive areas prior to application. The applicator must also consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is blowing toward adjacent commercially grown sensitive crops.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the “Sensitive Areas” section of this label for more information).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer’s directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.

7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.
11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS:

No rotational cropping restrictions apply when rotating to Bollgard II® XtendFlex™ cotton or Roundup Ready® 2 Xtend soybean.

For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen.. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for M1691 Herbicide applications of 24 fluid ounces per acre or less:

For corn, cotton (except Bollgard II® Xtendflex™ cotton), sorghum, and soybean (except Roundup Ready® 2 Xtend soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 8 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 8 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 24 fluid ounces and up to 32 fluid ounces of M1691 Herbicide per acre:

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® Xtendflex™) east of the Rocky Mountains and before planting all other crops (except Roundup Ready® 2 Xtend soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 16 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 16 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY

ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on Roundup Ready Xtend crops, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR M1691 HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using M1691 Herbicide as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on xx/xx/xxxx and must not be used or distributed after this date.

M1691

Herbicide

EPA Reg. No. 524-582

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON ROUNDUP READY 2 XTEND™ SOYBEAN

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II® Roundup Ready®, Roundup Ready 2 Xtend™ and XtendFlex™ are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

ROUNDUP READY 2 XTEND™ SOYBEAN CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO SOYBEANS THAT ARE NOT DICAMBA TOLERANT, INCLUDING SOYBEANS WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN

HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Roundup Ready 2 Xtend™ soybean can be obtained from your seed supplier or Monsanto representative. Roundup Ready 2 Xtend™ soybean must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of M1691 Herbicide that may be made to Roundup Ready 2 Xtend™ soybean during the complete cropping season. DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of any other M1691 Herbicide label for use over crops that do not contain the dicamba tolerance trait.

Note: Roundup Ready 2 Xtend™ soybean and methods of controlling weeds and applying dicamba in a Roundup Ready 2 Xtend™ soybean crop are protected under U.S. patent law. No license to use Roundup Ready 2 Xtend™ soybean is granted or implied with the purchase of this herbicide product. Roundup Ready 2 Xtend™ soybean is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Roundup Ready 2 Xtend™ soybean.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the M1691 Herbicide product label for important product use information. The directions found on this supplemental label are controlling, where inconsistencies are found with the label booklet.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

M1691 Herbicide is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions:

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS: Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend™ soybeans.

Maximum Application Rates	
Combined total per year for all applications	64 fluid ounces per acre (2.0 lb a.e. dicamba per acre)
Total of all Burndown/Early preplant, Preplant, At-Planting, and Preemergence applications	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Total of all In-crop applications from emergence up to and including beginning bloom (R1 stage soybeans)	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Maximum In-crop, single application	16 fluid ounces per acre (0.5 lb a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the M1691 Herbicide label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend™ soybean. Refer to the “WEEDS CONTROLLED” section of the label booklet for M1691 Herbicide for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 32 fluid ounces (1.0 lb a.e. dicamba) per acre per year. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend™ soybean. In-crop applications of this product can be made from emergence (cracking) up to and including beginning bloom (R1 growth stage of soybeans). The maximum rate for any single, in-crop application must not exceed 16 fluid ounces (0.5 lb a.e. dicamba) per acre. This is also the minimum single application rate in order to reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. A second application of this product up to the R1 crop growth stage may be necessary to control new flushes of weeds. Allow at least 7 days between applications. For best results, apply M1691 Herbicide after some weed re-growth has occurred.

Application of this product postemergent and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in RR2X soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS: The combined total application rate from crop emergence up to R1 must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre. The maximum single, in-crop application rate must not exceed 16 fluid ounces (0.5 lb a.e. dicamba). The combined total per year for all applications must not exceed 64 fluid ounces (2.0 lb a.e. dicamba) per acre.

Allow at least 7 days between final application and harvest or feeding of soybean forage. Allow at least 14 days between final application and harvest or feeding of soybean hay.

TANK-MIXING INSTRUCTIONS:

RESTRICTIONS:

- **DO NOT TANK MIX ANY OTHER HERBICIDE WITH M1691 HERBICIDE.**

TANK MIXING INSTRUCTIONS FOR ADJUVANTS

M1691 Herbicide may only be tank-mixed with adjuvants that have been tested and found by EPA not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide. A list of those EPA approved adjuvants and use rates may be found at [INSERT URL HERE]. DO NOT tank mix any adjuvant with M1691 Herbicide unless:

1. You check the list of EPA approved adjuvants found not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide at [INSERT URL HERE] no more than 7 days before applying M1691 Herbicide; and
2. The intended adjuvant tank-mix with M1691 Herbicide is identified on that list of tested and approved adjuvants; and
3. The intended adjuvant tank-mix with M1691 Herbicide is not prohibited on this label.
4. Additional Adjuvant Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to

genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same modes of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Use a minimum of 0.5 lb a.e./A (16 fl oz/A) of this product in a single application in order to minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued availability of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of M1691 Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES:

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND™ SOYBEAN USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed .

Controlling Droplet Size

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use the Tee Jet® TT11004 nozzle with a maximum operating pressure of 63 psi when applying M1691 Herbicide. Do not use any other nozzle and pressure combination not specifically allowed by this supplemental label.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and are impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated

cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.

- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For M1691 Herbicide wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply M1691 Herbicide
3-10 mph	Optimum M1691 Herbicide application conditions provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward sensitive areas
> 15 mph	Do not apply M1691 Herbicide

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Threatened and Endangered Species

Maintain a 110 foot buffer (when applying 16 fl oz of this product per acre), or a 220 foot buffer (when applying 32 fl oz of this product per acre) from all outer edges of the field, less the distance of any of the adjacent areas specified below.

To maintain the required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance of a sensitive area.
- The following areas may be included in the buffer distance calculation when adjacent to field edges:
 - Roads, paved or gravel surfaces.
 - Planted agricultural fields containing corn, sorghum, proso millet, small grains and sugarcane.
 - Agricultural fields that have been prepared for planting.
 - Areas covered by the footprint of a building, shade house, silo, feed crib, or other man made structure with walls and or roof.

Non-target Susceptible Plants

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1691 Herbicide. Before making an application, the applicator must survey the application site for neighboring sensitive areas prior to application. The applicator must also consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is blowing toward adjacent commercially grown sensitive crops.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the "Sensitive Areas" section of this label for more information).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.

11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS:

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend™ soybean or Bollgard II® XtendFlex™ cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen.. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for M1691 Herbicide applications of 24 fluid ounces per acre or less:

For corn, cotton (except Bollgard II® Xtendflex™ cotton), sorghum, and soybean (except Roundup Ready 2 Xtend™ soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 8 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 8 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 24 fluid ounces and up to 32 fluid ounces of M1691 Herbicide per acre:

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® Xtendflex™ cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend™ soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 16 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 16 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on Roundup Ready Xtend crops, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 1/4/2017 7:59:25 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]
Subject: RE: Dicamba

We will talk discuss all that you have suggested with exception of volatility. So we will need efed. I can ask about the label questions off line with you.

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Wednesday, January 04, 2017 1:58 PM
To: BHAKTA, TINA [AG/1000]
Cc: Kenny, Daniel
Subject: RE: Dicamba

Hi, Tina,

So do you no longer need EFED for this meeting? Sounds like more of a labeling question.

We can't really discuss another company's labeling with you. We've noted the concerns you pointed out in your voicemail to Dan, and we will look into those. Are there more? If we're not going to discuss the volatility or drift topics, not sure if we still need this call?

Best Regards,
Kay

From: BHAKTA, TINA [AG/1000] [mailto:tina.bhakta@monsanto.com]
Sent: Wednesday, January 04, 2017 12:46 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Subject: RE: Dicamba

Thanks Kay;

Since we do not have much time can we not discuss the volatility protocol today?? We have been working with all of our partners to ensure that they are following the same stewardship as us, only moving those products forward that will not cause an issue from a volatility stand point.

We would like to discuss a couple of items on the newly approved engenia label on differences that were not reflected on our Xtendimax label that can apply to our label too. And an update on the Round up Xtend data review.

Thanks and talk to you soon

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Tuesday, January 03, 2017 4:29 PM
To: BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Subject: RE: Dicamba

Hi, Tina,

It will be RD (me, Dan, Grant) and EFED (Mark Corbin, Monica Wait, Chuck Peck, and possibly others). Based on our previous conversations, I believe we should be discussing:

- Revisions to Appendix A (the drift protocol for tank mixes) to use data for M1768 as the “baseline” vs data for M1691
- Possibility and process for adding a volatility protocol and testing requirement for tank mix partners
- Status of the tank mix data you’ve already submitted

Does that agree with your understanding/expectations?

Best Regards,
Kay

From: BHAKTA, TINA [AG/1000] [<mailto:tina.bhakta@monsanto.com>]
Sent: Tuesday, January 03, 2017 4:48 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: RE: Dicamba

Hi Kay,

Happy new year! I hope you had a good break.

Can you let us know who else will be attending this call? Is this to discuss the tank mixing protocol?

Thanks

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Tuesday, January 03, 2017 2:03 PM
To: NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>; BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Subject: RE: Dicamba

Hi, James,

We can’t use Webex...please call us using the following information:

Phone / Ex. 6

-----Original Appointment-----

From: NYANGULU, JAMES M [AG/1920] [<mailto:james.m.nyangulu@monsanto.com>]

Sent: Wednesday, December 14, 2016 1:34 PM

To: NYANGULU, JAMES M [AG/1920]; Montague, Kathryn V.; Kenny, Daniel; BHAKTA, TINA [AG/1000]

Subject: Dicamba

When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: WebEx

When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: WebEx

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

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Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 3/31/2016 3:52:48 PM
To: Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf
Attachments: M1691 Herbicide DT soybean Label_March_31_2016_revisions_finaldraft_URL1....pdf

Grant:

Please see attached. Does EPA intend to make a press release?

Thank you,

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

From: Rowland, Grant [mailto:Rowland.Grant@epa.gov]
Sent: Thursday, March 31, 2016 11:31 AM
To: JENKINS, DANIEL J [AG/1920]
Cc: BHAKTA, TINA [AG/1000]
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

Dan,

We have a little time left. Found one mistake. Can you make this quick change on page 7 of the soybean label under **Sensitive areas** to match the cotton label.

maintain the required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance of a ~~sensitive area~~.
- The following areas may be included in the buffer distance calculation when adjacent to field edges:
 - o Roads, paved or gravel surfaces.

Grant Rowland
Herbicide Branch

Registration Division
Office of Pesticide Programs
703-347-0254

From: JENKINS, DANIEL J [AG/1920] [<mailto:daniel.j.jenkins@monsanto.com>]
Sent: Thursday, March 31, 2016 10:03 AM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; Rowland, Grant <Rowland.Grant@epa.gov>; Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

Dan:

Per our conversation. Please see attached. Note we had to revert to the [insert URL here] instead of the website address for tank mixes, bc it is not quite ready yet, but will be soon.

Thank you,

Dan Jenkins
U.S. Agency Lead
Regulatory Affairs
Monsanto Company
1300 I St., NW
Suite 450 East
Washington, DC 20005
Office: 202-383-2851
Cell: 571-732-6575

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Thursday, March 31, 2016 8:49 AM
To: JENKINS, DANIEL J [AG/1920]; Rowland, Grant; Kenny, Daniel
Subject: RE: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

Hi, Dan,

We're looking into these, and will get back to you ASAP.

One question on the ag crops, though – how would the applicator know that adjacent cotton or soybeans are the tolerant versions?

Thanks,
Kay

From: JENKINS, DANIEL J [AG/1920] [<mailto:daniel.j.jenkins@monsanto.com>]
Sent: Thursday, March 31, 2016 8:02 AM
To: Rowland, Grant <Rowland.Grant@epa.gov>; Kenny, Daniel <Kenny.Dan@epa.gov>; Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Subject: Emailing - M1691 Herbicide DT soybean Label_March_29_2016_revisions_final epa edits 3 30 2016djj.pdf

We're cleaning things up, but please see our comments re

110 ft buffer: addition of "from" could be read to mean that you must have 110' between spray and field edge regardless of the "exceptions" (adjacent road, planted field any of the exceptions). That could result in 110' + the distance of any the excepted areas. Here is a proposed fix:

"Maintain a 110 foot in-field buffer (when applying 16 fl oz of this product per acre), or a 220 foot in-field buffer (when applying 32 fl oz of this product per acre) on from all outer edges of the field, less the distance of any of the adjacent areas specified below."

Adjacent ag fields: it doesn't make sense that non-broadleaves with registered uses can be included in the buffer distance calculation, but if a neighbor plants the exact same gm dicamba tolerant crops and it is adjacent it can't be. We strongly suggest the following:

Planted agricultural fields containing crops with a natural tolerance to dicamba including corn, sorghum, proso millet, small grains and sugarcane and crops containing a dicamba tolerance gene including Roundup Ready II Xtend soybeans and Bollgard II Xtendflex Cotton.

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR M1691 HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

When using M1691 Herbicide as permitted according to this supplemental labeling, read and follow all applicable directions, restrictions, and precautions on the label booklet provided with the pesticide container and on this supplemental labeling. This supplemental labeling must be in the possession of the user at the time of pesticide application.

This supplemental label expires on xx/xx/xxxx and must not be used or distributed after this date.

M1691

Herbicide

EPA Reg. No. 524-582

GROUP	4	HERBICIDE
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FOR PREEMERGENCE AND POSTEMERGENCE USE ON ROUNDUP READY 2 XTEND™ SOYBEAN

Keep out of reach of children

CAUTION!

In case of an emergency involving this product, call collect, day or night, 314-694-4000.

Bollgard II® Roundup Ready®, Roundup Ready 2 Xtend™ and XtendFlex™ are trademarks of Monsanto Technology LLC. All other trademarks are the property of their respective owners.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This labeling must be in the possession of the user at the time of herbicide application.

ROUNDUP READY 2 XTEND™ SOYBEAN CONTAINS A PATENTED GENE THAT PROVIDES TOLERANCE TO DICAMBA, THE ACTIVE INGREDIENT IN THIS PRODUCT. THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO SOYBEANS THAT ARE NOT DICAMBA TOLERANT, INCLUDING SOYBEANS WITH A TRAIT ENGINEERED TO CONFER TOLERANCE TO AUXIN

HERBICIDES OTHER THAN DICAMBA. FOLLOW THE REQUIREMENTS SET FORTH HEREIN TO PREVENT SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS. CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A DICAMBA TOLERANCE GENE OR ARE NOT NATURALLY TOLERANT TO DICAMBA, COULD RESULT IN SEVERE PLANT INJURY OR DESTRUCTION.

Information on Roundup Ready 2 Xtend™ soybean can be obtained from your seed supplier or Monsanto representative. Roundup Ready 2 Xtend™ soybean must be purchased from an authorized licensed seed supplier.

The instructions contained in this Monsanto Supplemental Label include all applications of M1691 Herbicide that may be made to Roundup Ready 2 Xtend™ soybean during the complete cropping season. DO NOT combine these instructions with other instructions in the "SOYBEAN" Section of any other M1691 Herbicide label for use over crops that do not contain the dicamba tolerance trait.

Note: Roundup Ready 2 Xtend™ soybean and methods of controlling weeds and applying dicamba in a Roundup Ready 2 Xtend™ soybean crop are protected under U.S. patent law. No license to use Roundup Ready 2 Xtend™ soybean is granted or implied with the purchase of this herbicide product. Roundup Ready 2 Xtend™ soybean is owned by Monsanto and a license must be obtained from Monsanto before using it. Contact your Authorized Monsanto Retailer for information on obtaining a license to Roundup Ready 2 Xtend™ soybean.

See the "PRODUCT INFORMATION" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the M1691 Herbicide product label for important product use information. The directions found on this supplemental label are controlling, where inconsistencies are found with the label booklet.

TYPES OF APPLICATIONS: Preplant; At-Planting; Preemergence; Postemergence (In-crop)

M1691 Herbicide is approved by U.S. EPA to be used in the following states, subject to county restriction as noted: Alabama, Arkansas, Arizona, Colorado, Delaware, Florida (excluding Palm Beach County), Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee (excluding Wilson County), Texas, Virginia, West Virginia, Wisconsin.

Restrictions:

- Do not apply this product aerially.
- Do not make application of this product if rain is expected in the next 24 hours.

USE INSTRUCTIONS: Apply this product in a minimum of 10 gallons of spray solution per acre as a broadcast application. For best performance, control weeds early when they are less than 4 inches. Timely application will improve control and reduce weed competition. Refer to the following table for maximum application rates of this product with Roundup Ready 2 Xtend™ soybeans.

Maximum Application Rates	
Combined total per year for all applications	64 fluid ounces per acre (2.0 lb a.e. dicamba per acre)
Total of all Burndown/Early preplant, Preplant, At-Planting, and Preemergence applications	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Total of all In-crop applications from emergence up to and including beginning bloom (R1 stage soybeans)	32 fluid ounces per acre (1.0 lb a.e. dicamba per acre)
Maximum In-crop, single application	16 fluid ounces per acre (0.5 lb a.e. dicamba per acre)

a.e. – acid equivalent

Refer to Table 1 of the M1691 Herbicide label booklet for application rates for weed type and growth stage controlled by this product. Maximum in-crop application rate should be used when treating tough to control weeds, dense vegetative growth or weeds with a well-established root system.

Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be used to control broadleaf weeds and may be applied before, during or immediately after planting Roundup Ready 2 Xtend™ soybean. Refer to the “WEEDS CONTROLLED” section of the label booklet for M1691 Herbicide for specific weeds controlled.

RESTRICTIONS: The maximum combined quantity of this product that may be applied for all preplant, at-planting, and preemergence applications is 32 fluid ounces (1.0 lb a.e. dicamba) per acre per year. The maximum application rate for a single, preplant, at-planting, or preemergence application must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre.

Postemergence (In-crop)

USE INSTRUCTIONS: This product may be used to control broadleaf weeds in Roundup Ready 2 Xtend™ soybean. In-crop applications of this product can be made from emergence (cracking) up to and including beginning bloom (R1 growth stage of soybeans). The maximum rate for any single, in-crop application must not exceed 16 fluid ounces (0.5 lb a.e. dicamba) per acre. This is also the minimum single application rate in order to reduce the selection for resistant weeds. For best performance, control weeds early when they are less than 4 inches. Monsanto Company does not warrant product performance of applications to labeled weeds greater than 4 inches in height. A second application of this product up to the R1 crop growth stage may be necessary to control new flushes of weeds. Allow at least 7 days between applications. For best results, apply M1691 Herbicide after some weed re-growth has occurred.

Application of this product postemergent and under stressful environments may cause temporary loss of turgor, a response commonly described as leaf droop in RR2X soybeans. Typically, affected plants recover in 1-3 days depending on the level of droop and environmental conditions.

RESTRICTIONS: The combined total application rate from crop emergence up to R1 must not exceed 32 fluid ounces (1.0 lb a.e. dicamba) per acre. The maximum single, in-crop application rate must not exceed 16 fluid ounces (0.5 lb a.e. dicamba). The combined total per year for all applications must not exceed 64 fluid ounces (2.0 lb a.e. dicamba) per acre.

Allow at least 7 days between final application and harvest or feeding of soybean forage. Allow at least 14 days between final application and harvest or feeding of soybean hay.

TANK-MIXING INSTRUCTIONS:

RESTRICTIONS:

- **DO NOT TANK MIX ANY OTHER HERBICIDE WITH M1691 HERBICIDE.**

TANK MIXING INSTRUCTIONS FOR ADJUVANTS

M1691 Herbicide may only be tank-mixed with adjuvants that have been tested and found by EPA not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide. A list of those EPA approved adjuvants and use rates may be found at [INSERT URL HERE]. DO NOT tank mix any adjuvant with M1691 Herbicide unless:

1. You check the list of EPA approved adjuvants found not to have an unreasonable adverse effect on the spray drift properties of M1691 Herbicide at [INSERT URL HERE] no more than 7 days before applying M1691 Herbicide; and
2. The intended adjuvant tank-mix with M1691 Herbicide is identified on that list of tested and approved adjuvants; and
3. The intended adjuvant tank-mix with M1691 Herbicide is not prohibited on this label.
4. Additional Adjuvant Warnings and Restrictions:
 - Some COC, HSOC and MSO adjuvants may cause a temporary crop response.
 - Do not tank mix products containing ammonium salts such as ammonium sulfate and urea ammonium nitrate.
 - Drift reduction agents listed on the website above can minimize the percentage of driftable fines. However, the applicator must check with the DRA manufacturer to determine if the approved DRA will work effectively with the spray nozzle, the spray pressure, and the desired spray solution.

MONSANTO MAKES NO RECOMMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED ABOVE, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. See the section titled "LIMIT OF WARRANTY AND LIABILITY" herein for more information.

WEED RESISTANCE MANAGEMENT

Some naturally occurring weed biotypes that are tolerant (resistant) to dicamba may exist due to

genetic variability in a weed population. Where resistant biotypes exist, the repeated use of herbicides with the same modes of action can lead to the selection for resistant weeds. Certain agronomic practices can delay or reduce the likelihood that resistant weed populations will develop and can be utilized to manage weed resistance once it occurs.

Use a minimum of 0.5 lb a.e./A (16 fl oz/A) of this product in a single application in order to minimize the selection for resistant weeds.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued availability of this product depends on the successful management of the weed resistance program; therefore, it is very important to perform the following actions.

To aid in the prevention of developing weeds resistant to this product, the following steps should be followed where practical:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Apply full rates of M1691 Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in weed species.
- Report any incidence of non-performance of this product against a particular weed species to your Monsanto retailer, representative or call [INSERT PHONE NUMBER]
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 4 and/or use non-chemical methods to remove escapes, as practical, with the goal of preventing further seed production.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum soil-applied herbicide with other modes of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 4 herbicides.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

Contact the local agricultural extension service, Monsanto representative, ag retailer or crop consultant for further guidance on weed control practices as needed.

APPLICATION EQUIPMENT AND TECHNIQUES:

DO NOT APPLY THIS PRODUCT TO ROUNDUP READY 2 XTEND™ SOYBEAN USING AERIAL SPRAY EQUIPMENT.

Apply this product using properly maintained and calibrated equipment capable of delivering the desired volumes.

Spray Drift Management

Do not allow herbicide solution to mist, drip, drift or splash onto desirable vegetation because severe injury or destruction to desirable broadleaf plants could result. The following drift management requirements must be followed .

Controlling Droplet Size

Drift potential may be reduced by applying large droplets that provide sufficient coverage and control. Applying larger droplets can reduce drift potential, but will not prevent drift if the application is made improperly, or under unfavorable environmental conditions (see the “**Wind Speed and Direction**”, “**Temperature and Humidity**” and “**Temperature Inversions**” sections of this label).

- **Nozzle type.** Use the Tee Jet® TT11004 nozzle with a maximum operating pressure of 63 psi when applying M1691 Herbicide. Do not use any other nozzle and pressure combination not specifically allowed by this supplemental label.
- **Spray Volume.** Apply this product in a minimum of 10 gallons of spray solution per acre. Use a higher spray volume when treating dense vegetation. Higher spray volumes may also allow the use of larger nozzle orifices (sizes) which produce coarser spray droplets.
- **Equipment Ground Speed.** Select a ground speed that will deliver the desired spray volume while maintaining the desired spray pressure, but do not exceed a ground speed of 15 miles per hour. Slower speeds generally result in better spray coverage and deposition on the target area.
- **Spray boom Height.** Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but do not exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Larger droplets have a lower surface to volume ratio and are impacted less by temperature and humidity. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions. Do not apply during a temperature inversion because off-target movement potential is high.

- During a temperature inversion, the atmosphere is very stable and vertical air mixing is restricted, which can cause small, suspended droplets to remain in a concentrated

cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions.

- Temperature inversions are characterized by increasing temperatures with altitude and are common on evenings and nights with limited cloud cover and light to no wind. Cooling of air at the earth's surface takes place and warmer air is trapped above it. They begin to form as the sun sets and often continue into the morning.
- Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.
- The inversion will dissipate with increased winds (above 3 MPH) or at sunrise when the surface air begins to warm (generally 3°F from morning low).

Wind Speed and Direction

- Drift potential is lowest between wind speeds of 3 to 10 miles per hour.
- Do not apply at wind speeds greater than 15 mph.
- For M1691 Herbicide wind speed and direction restrictions see below table:

Wind speed	Application conditions and restrictions
<3 mph	Do not apply M1691 Herbicide
3-10 mph	Optimum M1691 Herbicide application conditions provided all other application requirements in this label are met.
>10 – 15 mph	Do not apply product when wind is blowing toward sensitive areas
> 15 mph	Do not apply M1691 Herbicide

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

Sensitive Areas

Threatened and Endangered Species

Maintain a 110 foot buffer (when applying 16 fl oz of this product per acre), or a 220 foot buffer (when applying 32 fl oz of this product per acre) from all outer edges of the field, less the distance of any of the adjacent areas specified below.

To maintain the required buffer zone:

- No application swath can be initiated in, or into an area that is within the applicable buffer distance.
- The following areas may be included in the buffer distance calculation when adjacent to field edges:
 - Roads, paved or gravel surfaces.
 - Planted agricultural fields containing corn, sorghum, proso millet, small grains and sugarcane.
 - Agricultural fields that have been prepared for planting.
 - Areas covered by the footprint of a building, shade house, silo, feed crib, or other man made structure with walls and or roof.

Non-target Susceptible Plants

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Do not allow contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1691 Herbicide. Before making an application, the applicator must survey the application site for neighboring sensitive areas prior to application. The applicator must also consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is blowing toward adjacent commercially grown sensitive crops.

Application Awareness

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR

The interaction of equipment and weather related factors must be monitored to maximize performance and on-target spray deposition. The applicator is responsible for considering all of these factors when making a spray decision. The applicator is responsible for compliance with state and local pesticide drift regulations.

Proper spray system equipment cleanout

Minute quantities of dicamba may cause injury to non-dicamba-tolerant soybeans and other sensitive crops (see the "Sensitive Areas" section of this label for more information).

Clean equipment immediately after using this product, using a triple rinse procedure as follows:

1. After spraying, drain the sprayer (including boom and lines) immediately. Do not allow the spray solution to remain in the spray boom lines overnight prior to flushing.
2. Flush tank, hoses, boom and nozzles with clean water.
3. Inspect and clean all strainers, screens and filters.
4. Prepare a cleaning solution with a commercial detergent or sprayer cleaner or ammonia according to the manufacturer's directions.
5. Take care to wash all parts of the tank, including the inside top surface. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
6. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
7. Repeat above steps for two additional times to accomplish an effective triple rinse.
8. Remove nozzles, screens and strainers and clean separately in the cleaning solution after completing the above procedures.
9. Appropriately dispose of rinsate from steps 1-7 in compliance with all applicable laws and regulations.
10. Drain sump, filter and lines.

11. Rinse the complete spraying system with clean water.

All rinse water must be disposed of in compliance with local, state, and federal requirements.

CROP ROTATIONAL RESTRICTIONS:

No rotational cropping restrictions apply when rotating to Roundup Ready 2 Xtend™ soybean or Bollgard II® XtendFlex™ cotton. For other crops the interval between application and planting rotational crop is given below. When counting days from the application of this product, do not count days when the ground is frozen.. Planting at intervals less than specified below may result in crop injury. Moisture is essential for the degradation of this herbicide in soil. If dry weather prevails, use cultivation to allow herbicide contact with moist soil.

Planting/replanting restrictions for M1691 Herbicide applications of 24 fluid ounces per acre or less:

For corn, cotton (except Bollgard II® Xtendflex™ cotton), sorghum, and soybean (except Roundup Ready 2 Xtend™ soybean), follow the planting restrictions in the directions for use for preplant application in **Section 10. Crop-Specific Information** of the label booklet. Do not plant barley, oat, wheat, and other grass seedings for 15 days for every 8 fluid ounces of this product applied per acre east of the Mississippi River and 22 days for every 8 fluid ounces per acre applied west of the Mississippi River. No planting restrictions apply beyond 120 days after application of this product.

Planting/replanting restrictions for applications of more than 24 fluid ounces and up to 32 fluid ounces of M1691 Herbicide per acre:

Wait a minimum of 120 days after application of this product before planting corn, sorghum and cotton (except Bollgard II® Xtendflex™ cotton) east of the Rocky Mountains and before planting all other crops (except Roundup Ready 2 Xtend™ soybean) grown in areas receiving 30 inches or more rainfall annually. Wait a minimum of 180 days before planting crops in areas with less than 30 inches of annual rainfall. Wait a minimum of 30 days for every 16 fluid ounces of this product applied per acre before planting barley, oat, wheat, and other grass seedings east of the Mississippi River and 45 days for every 16 fluid ounces of this product applied per acre west of the Mississippi River.

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company ("Company") warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in this supplemental label ("Directions") when used in accordance with the Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein. Specifically, and without limiting the foregoing, MONSANTO MAKES NO RECCOMENDATION OR WARRANTY HEREIN REGARDING THE USE OF ANY ADJUVANT THAT MAY APPEAR ON THE WEBSITE REFERENCED IN THE TANK-MIXING INSTRUCTIONS HEREIN, REGARDLESS OF WHETHER SUCH ADJUVANT IS USED ALONE OR IN A TANK MIX WITH M1691 HERBICIDE. BUYER AND ALL USERS ARE SOLELY RESPONSIBLE FOR ANY LACK OF PERFORMANCE, LOSS, OR DAMAGE IN CONNECTION WITH THE USE OR HANDLING OF ANY SUCH ADJUVANT ALONE OR IN A TANK MIX WITH M1691 HERBICIDE.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those expressly recommended by Company in the Directions, application to or contact with desirable vegetation, failure of this product to control weed biotypes which develop resistance to dicamba, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those expressly recommended by Company in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

For in-crop (over-the-top) uses on Roundup Ready Xtend crops, crop safety and weed control performance are not warranted by Company when this product is used in conjunction with "brown bag" or "bin run" seed saved from previous year's production and replanted.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©[YEAR]

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800 N. LINDBERGH BLVD.
ST. LOUIS, MISSOURI 63167 USA

[INSERT DATE]

[INSERT PRINT PLATE NUMBER]

[INSERT SUPPLEMENTAL LABEL EXPIRATION DATE]

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 1/4/2017 8:01:45 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]
CC: Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]
Subject: RE: Dicamba

we cannot get on, the conference code is not valid.

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Wednesday, January 04, 2017 2:00 PM
To: BHAKTA, TINA [AG/1000]
Cc: Kenny, Daniel
Subject: Re: Dicamba

Ok will set up the line now

Sent from my iPhone

On Jan 4, 2017, at 2:59 PM, BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com> wrote:

We will talk discuss all that you have suggested with exception of volatility. So we will need efed. I can ask about the label questions off line with you.

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [mailto:Montague.Kathryn@epa.gov]
Sent: Wednesday, January 04, 2017 1:58 PM
To: BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Cc: Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: RE: Dicamba

Hi, Tina,

So do you no longer need EFED for this meeting? Sounds like more of a labeling question.

We can't really discuss another company's labeling with you. We've noted the concerns you pointed out in your voicemail to Dan, and we will look into those. Are there more? If we're not going to discuss the volatility or drift topics, not sure if we still need this call?

Best Regards,
Kay

From: BHAKTA, TINA [AG/1000] [<mailto:tina.bhakta@monsanto.com>]
Sent: Wednesday, January 04, 2017 12:46 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Subject: RE: Dicamba

Thanks Kay;

Since we do not have much time can we not discuss the volatility protocol today?? We have been working with all of our partners to ensure that they are following the same stewardship as us, only moving those products forward that will not cause an issue from a volatility stand point.

We would like to discuss a couple of items on the newly approved engenia label on differences that were not reflected on our Xtendimax label that can apply to our label too. And an update on the Round up Xtend data review.

Thanks and talk to you soon

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Tuesday, January 03, 2017 4:29 PM
To: BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Subject: RE: Dicamba

Hi, Tina,

It will be RD (me, Dan, Grant) and EFED (Mark Corbin, Monica Wait, Chuck Peck, and possibly others). Based on our previous conversations, I believe we should be discussing:

- Revisions to Appendix A (the drift protocol for tank mixes) to use data for M1768 as the “baseline” vs data for M1691
- Possibility and process for adding a volatility protocol and testing requirement for tank mix partners
- Status of the tank mix data you’ve already submitted

Does that agree with your understanding/expectations?

Best Regards,
Kay

From: BHAKTA, TINA [AG/1000] [<mailto:tina.bhakta@monsanto.com>]
Sent: Tuesday, January 03, 2017 4:48 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: RE: Dicamba

Hi Kay,

Happy new year! I hope you had a good break.

Can you let us know who else will be attending this call? Is this to discuss the tank mixing protocol?

Thanks

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

From: Montague, Kathryn V. [<mailto:Montague.Kathryn@epa.gov>]
Sent: Tuesday, January 03, 2017 2:03 PM
To: NYANGULU, JAMES M [AG/1920] <james.m.nyangulu@monsanto.com>; Kenny, Daniel <Kenny.Dan@epa.gov>; BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Subject: RE: Dicamba

Hi, James,

We can't use Webex...please call us using the following information:

Dial-in **Phone / Ex. 6**

Conf code **Phone / Ex. 6**

-----Original Appointment-----

From: NYANGULU, JAMES M [AG/1920] [<mailto:james.m.nyangulu@monsanto.com>]
Sent: Wednesday, December 14, 2016 1:34 PM
To: NYANGULU, JAMES M [AG/1920]; Montague, Kathryn V.; Kenny, Daniel; BHAKTA, TINA [AG/1000]
Subject: Dicamba
When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: WebEx

When: Wednesday, January 04, 2017 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: WebEx

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

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Message

From: JENKINS, DANIEL J [AG/1920] [daniel.j.jenkins@monsanto.com]
Sent: 6/6/2016 11:32:00 AM
To: Kenny, Daniel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1be9bb592f144269bcd41dd3a6d8a6d4-Daniel C. Kenny]; Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Rowland, Grant [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5b004bc79f1f40b0a181a584a8c64495-Rowland, Grant]; Lewis, Susan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f4f15e97124245e2906dead1e63d69d9-Susan T. Lewis]
Subject: Fwd: Monsanto published comment
Attachments: Monsanto Dicamba Public Comment_EPA-HQ-OPP-2016-0187.pdf

Courtesy copy of our submitted comment

Dan Jenkins
US Agency Lead
Monsanto Company
202.383.2851 office
571.732.6575 cell

Begin forwarded message:

From: "Dan" <danieljjenkins@gmail.com>
To: "JENKINS, DANIEL J [AG/1920]" <daniel.j.jenkins@monsanto.com>
Subject: Monsanto published comment



Dan

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MONSANTO



May 31, 2016

Philip W. Miller
Vice President, Global Regulatory and Government Affairs

MONSANTO COMPANY
1300 I (Eye) Street, NW
Suite 450 East
Washington, D.C. 20005
<http://www.monsanto.com>

Docket ID No. EPA-HQ-OPP-2016-0187
Dicamba: New Use on Herbicide-Tolerant Cotton and Soybeans
Environmental Protection Agency
Mailcode 28221 T
1200 Pennsylvania Ave, NW
Washington, DC 20460

Attention: Jack Housenger

Dear Mr. Housenger:

Please find enclosed Monsanto's comment to Docket ID No. EPA-HQ-OPP-2016-0187 in support of Dicamba: New Use on Herbicide-Tolerant Cotton and Soybeans.

Sincerely,

Philip W. Miller, Ph.D.
Vice President, Global Regulatory and Government Affairs

**COMMENTS OF MONSANTO COMPANY ON EPA'S PROPOSED REGISTRATION
OF DICAMBA FOR USE ON DICAMBA-TOLERANT COTTON AND SOYBEAN**

EPA-HQ-OPP-2016-0127-0016

Submitted by:

Monsanto Company
800 North Lindbergh Blvd.
St. Louis, MO 63167

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I. INTRODUCTION AND EXECUTIVE SUMMARY

Monsanto is pleased to have the opportunity to comment on EPA's proposed approval of M1691 Herbicide, the new use of dicamba in the Roundup Ready® Xtend Crop System for soybean and cotton. This comment discusses the following products (collectively referred to as "the Monsanto Dicamba Products"): (1) M1691 Herbicide (Clarity®)¹; (2) M1768 Herbicide (Xtendimax™ with VaporGrip™ Technology)²; and (3) M1769 Herbicide (Roundup® Xtend™ with VaporGrip™ Technology).³ The assessment that EPA has conducted for M1691 Herbicide further supports EPA's assessment for the in-crop use of Monsanto's M1768 and M1769 Herbicides containing the DGA salt of Dicamba. Monsanto's comments make the following key points:

First, the new use of dicamba will provide important and wide-ranging benefits to cotton and soybean production in the United States. Dicamba use on dicamba-tolerant soybean and cotton will (1) help further promote the sustainability of crop production in the U. S.; (2) provide more weed control options for farmers; (3) slow the development of resistant herbicide genotypes for other herbicide mechanisms-of-action that are currently registered for use in soybean and cotton; and (4) further facilitate the adoption of no-till and conservational tillage practices.

Second, a downwind buffer of 110 feet (for 0.5 lb a.e./A) would be more than sufficient to protect non-target organisms and threatened or endangered species from any effects of dicamba. Multiple studies show that no buffer whatsoever is necessary to be protective of volatilization, while available data support that a 110-foot downwind buffer at the time of application is more than amply protective of the effects of particle drift.

Third, EPA's risk assessments are scientifically sound and supported by a large body of law. EPA's registration of M1691 Herbicide for dicamba-tolerant soybean and cotton is based on extensive toxicity and ecological effects evaluations. As part of this process, EPA requires data on environmental fate, and ecological effects on non-target terrestrial and aquatic animals, and non-target plants. EPA also specifically focuses on potential effects a pesticide may have to listed species by conducting thorough ecological risk assessments. EPA's Environmental Fate and Effects Division (EFED) conducted EPA's assessments of both ecological effects and exposure, to evaluate whether M1691 Herbicide may affect listed species. Where, based on its ecological risk assessment, EPA concluded that M1691 Herbicide would have "no effect" on listed species, it ended its endangered species assessment. Where EPA concluded, instead, that M1691 Herbicide "may affect" but was "not likely to adversely affect," a species, it conducted further analysis and informal consultation with the U.S. Fish & Wildlife Service. Where EPA concluded that M1691 Herbicide "may affect" and was "likely to adversely affect" a species, EPA imposed a label restriction preventing dicamba from being applied in that county. Additionally, EPA's authority for a mitigated "no effect" finding is well-established. In relying upon maximum use scenarios, EPA's no effect determinations already take into account multiple

¹ Clarity® is a dicamba diglycolamine (DGA) salt containing formulation.

² Xtendimax™ with VaporGrip™ Technology Herbicide is a dicamba DGA salt containing formulation.

³ Roundup® Xtend with VaporGrip™ is a dicamba DGA salt and glyphosate ethanolamine salt containing formulation.

M1691 Herbicide label mandates. The conditions on the FIFRA label mandated by EPA are legally enforceable under FIFRA and become part of the proposed registration under the Endangered Species Act. Critically, EFED's screening-level assessments *already* rely upon the label's mandatory conditions as part of the effects determination. EPA also may take into account *other* mandatory conditions on pesticide labels, such as mandatory appropriate downwind buffer zones. This is entirely appropriate given that failure to follow the label requirements is unlawful. Absent reliance on label application rates and frequency, it would be impossible for EPA to assess potential exposure – and thus impossible for EPA to make either a “no effect” or a “may affect” determination.

Fourth, Monsanto supports a Weed Resistance Plan, with certain refinements. Monsanto greatly values maintaining the durability of our products and agrees that the benefits of tools such as M1691 Herbicide should be preserved for agriculture. Sustainability of this tool is important for American farmers and a business objective for Monsanto. As such, Monsanto supports voluntary stewardship, which enables the marketplace to adjust to emerging challenges around herbicide resistance.

Fifth, EPA should consider tank mixes where specifically requested, as tank mixing is critical for weed resistance management and environmental stewardship. Tank mixing also provides economic, sustainability, efficacy and productivity benefits to U.S. agriculture and the environment.

Lastly, EPA's analysis is technically and scientifically sound. EPA's Human Health Risk Assessment is highly conservative and demonstrates a reasonable certainty of no harm, and EPA's Occupational Risk Assessment demonstrates that the proposed label will provide ample protection from occupational exposure. The proposed label also is protective of non-target susceptible plants.

Technical corrections are included in an appendix to the comments.

II. THE NEW DICAMBA USE WILL PROVIDE SIGNIFICANT BENEFITS TO U.S. AGRICULTURE AND THE ENVIRONMENT

The new use of dicamba in the Roundup Ready[®] Xtend Crop System for soybean and cotton provides a new management tool for overall weed management, including the management of herbicide-resistant weeds. Specifically, dicamba use on dicamba-tolerant soybean and cotton will help further promote the sustainability of crop production in the United States. As discussed below, this new use of dicamba will offer a valuable weed management tool, provide more weed control options for farmers, and slow the development of resistant herbicide genotypes for other herbicide mechanisms-of-action (i.e., ALS, PPO, HPPD, glufosinate, glyphosate) that are currently registered for use in soybean and cotton, while also supporting the adoption of no-till and conservational tillage practices.

Existing herbicides present challenges to growers' ability to consistently control problematic weeds. As of April 2013, 400 herbicide-resistant weed biotypes have been reported to be resistant to 21 different herbicide modes-of-action worldwide (Heap, 2013). Dicamba-resistant and glufosinate-resistant weeds, however, account for only <1% and 0.5% of resistant biotypes,

respectively (Heap, 2013). Glyphosate-resistant weeds account for approximately 6% of the herbicide-resistant biotypes. Weeds resistant to herbicides that inhibit acetolactate synthase (ALS) account for 32% of the herbicide-resistant biotypes. Specifically, ALS-herbicide resistance is present in most of the major broadleaf weed species commonly found in cotton and soybeans. In several geographies—especially the mid-South—the invasive and aggressive weed Palmer amaranth, which is one of the worst pests for cotton and soybean producers, has become resistant to PPO and ALS inhibitors. As a result, PPO and ALS inhibitors standing alone often are not effective weed control options for many soybean and cotton farmers today.

The widespread occurrence of ALS- and glyphosate-resistant Palmer amaranth has led to higher use of PPO-inhibiting herbicides on soybean and cotton. As a result, Palmer amaranth in the U.S. mid-South has become resistant to PPO inhibitors. Studies conducted in 2016 have confirmed resistance to foliar applied PPO inhibitors (Salas et al., 2016). Additionally, Larry Steckel, Tennessee extension weed specialist, stated in a 2016 Delta Farm Press article that “We can safely say PPO resistance will be more widespread this spring and in a higher proportion of the population in fields where it was confirmed in 2015.” He further stated that “Liberty[®] is the last herbicide standing that will control Palmer amaranth post in our soybean fields in 2016.” (Steckel, 2016). However, the use of Liberty for post-emergent control is only available to farmers planting glufosinate-tolerant soybeans. Also of enormous concern is the overdependence currently being placed on glufosinate for the control of Palmer amaranth, resulting in tremendous selective pressure that facilitates development of glufosinate resistance (Sosnoskie et al., 2011).

In contrast, dicamba has been shown to be effective for control of multiple herbicide-resistant Palmer amaranth (Reiofeli et al., 2016). Dicamba also will be an important tool in preventing the development and further spread of other herbicide-resistant weeds, including glufosinate-tolerant weeds. The use of dicamba in the Roundup Ready[®] Xtend Crop System will be a benefit to farmers for controlling resistant weeds and maintaining the durability of currently available weed control options. BEAD’s review confirmed the importance of dicamba in post-emergent control of herbicide-resistant weeds: “Dicamba used during the growing season would target new flushes of weeds and could have the effect of reducing populations of these weeds and particularly would help reduce weed seed banks (i.e., viable seeds in the soil) to reduce populations of a new generation of weeds. Postemergence use of dicamba on genetically modified cotton and soybean during the growing season will expand options for broadleaf weed control.” (U.S. EPA, 2016).

A. Studies Confirm Dicamba Has Effective Pre-Emergent Control

BEAD’s benefits review states that “dicamba does not control weeds before they emerge.” (U.S. EPA, 2016). While dicamba is not strictly classified as a pre-emergent herbicide, it is an effective tool for pre-emergent weed management. When used on dicamba tolerant soybean or cotton, multiple mechanisms-of-action including dicamba applied pre-plant or pre-emergent can provide more consistent residual control of Palmer amaranth on dryland acres (Steckel 2013). A study by Purdue University in 2015 comparing use of dicamba alone and with multiple mechanisms-of-action found that mixtures containing dicamba applied to soil pre-emergent provided up to 91% control of Palmer amaranth species (Spaunhorst et al., 2010). Experiments using dicamba susceptible and resistant kochia seed suggested that both susceptible and resistant kochia can be over 95% controlled by pre-applied dicamba. The study concluded that “PRE application of dicamba can be a feasible option to manage kochia in rangeland or crop fields and,

more importantly, to minimize the spread of resistant plants.” (Ou et al., 2010).

The residual weed control provided by dicamba is another reason why farmers will benefit from use dicamba in a pre-emergent weed control regimen. A 2013 study found that under moderate rainfall conditions dicamba provided 50 to 80% control of glyphosate-resistant waterhemp 21 days after treatment (Logan et al., 2013). Bare ground field experiments at 20 locations across the Midwest evaluated the length of residual control of dicamba used alone and in combination with other herbicides. Using dicamba with additional mechanisms of action improved weed control across all species. The addition of dicamba to burndown and in-season weed management in dicamba-tolerant soybean can provide more consistent weed control and a more sustainable solution to management of glyphosate-resistant and hard to control weeds (Willis et al., 2012). Waterhemp emergence was evaluated in a study of soil persistence of dicamba. The study concluded “Initial results suggest that soil applied dicamba can significantly reduce waterhemp emergence up to 35 days.” (Schlichenmayer et al., 2011).

Dicamba is currently labeled for pre-emergent use on soy and cotton, but concerns over potential damage to crops and label restrictions such as waiting 21 days before planting cotton and 28 days before planting soybean (BASF Corporation, 2008) limit its use as a pre-emergent herbicide. The proposed label for use in the Roundup Ready[®] Xtend Crop System, however, allows for the use of dicamba before, during, or immediately after planting (Proposed Label, EPA-HQ-2016-0187-0015). The use of dicamba in the Roundup Ready[®] Xtend Crop System thus removes the pre-plant restrictions, providing greater flexibility to farmers.

B. Approval of Dicamba for Use on Dicamba-Tolerant Soybean and Cotton Will Further Facilitate No-Till Farming, Which Provides Significant Environmental Benefits

Dicamba-tolerant soybeans and cotton will also provide significant benefits by facilitating no- and low-till farming, which in turn confers significant environmental and economic benefits. Tillage is used for seedbed preparation and may also be used for weed control. The primary purposes of pre-plant tillage are to incorporate residue from the previous crop, reduce wheel traffic compaction from the previous season, improve water filtration and soil aeration, control weeds, loosen the soil for root penetration, and provide a suitable environment for planting and germination (Hake et al., 1996). Conventional tillage is associated with intensive plowing and less than 15% crop residue at the soil surface; reduced tillage is associated with 15 to 30% crop residue; and conservation tillage, including no-till practices, is associated with at least 30% crop residue and substantially less soil erosion than other tillage practices (CTIC, 2011).

The benefits of conservation tillage or no-till systems relative to conventional tillage are well-documented and include: reduced soil erosion; reduced fuel and labor costs; conservation of soil moisture; improvement of soil structure; reduction of soil compaction; and improvement of soil organic matter content. A study by CropLife America demonstrated that in 2005 the use of herbicides saved U.S. farmers 337 million gallons of fuel, produced \$16 billion in crop yield increases, and cut weed control costs by \$10 billion as compared to production without the use of herbicides (Gianessi and Reigner, 2006). Additionally, without herbicides, growers would have to abandon no-till or other conservation tillage production practices, which reduce soil erosion. If U.S. growers stopped using herbicides and resumed tillage on the number of acres not tilled in

2005, an additional 356 billion pounds of sediments would be deposited in streams and rivers, resulting in an estimated \$1.4 billion in downstream damage (Gianessi and Reigner, 2006).

BEAD's benefits review recognizes the benefits of no-till farming practices but states that no data was provided to support how the use of dicamba in the Roundup Ready® Xtend Crop System would support the continued use of no-till practices. However, the new use of dicamba in the Roundup Ready® Xtend Crop System will provide environmental and economic benefits by enabling the continued use of reduced tillage practices and reducing the inputs required to produce a successful crop. An analysis of farmer survey data in 2011 (Monsanto, 2012) demonstrated a preference for use of post-emergent products on reduced tillage acres compared to reliance on pre-emergent applications of soil residual herbicides.

Soybean and cotton production is more productive when herbicides are used to protect the crop from the stress of weed competition. However, controlling weeds can be more difficult in a no-till system due to the accumulation of residue from prior plantings, the lack of tillage in the cropping system, and the economics and effectiveness of various herbicide options. With the ability to make pre-plant and in-crop applications with effective and economical herbicides, no-till farmers are able to effectively manage weeds throughout the growing season. Specifically, the approval of dicamba for in-crop use would add new control options for weeds, including herbicide resistant weeds that threaten to eliminate the benefits of no-till.

Roundup Ready® crop systems provided better weed management options in no-till and reduced-tillage systems, facilitating greater adoption of conservation tillage systems in cotton and soybeans (Baldwin and Baldwin, 2002). Just as the introduction of effective post-weed control options in Roundup Ready crop systems led to an increase in no-till and reduced tillage farming, the introduction of dicamba-tolerant crop systems will provide additional effective post-weed control options in the Roundup Ready® Xtend Crop System, and therefore likely will increase the use of no-till and reduced tillage farming. Studies support this conclusion. For example, a 2015 paper demonstrated the effectiveness of dicamba for controlling horseweed in a conservation tillage system (Flessner et al., 2015). Horseweed is among the most troublesome weeds in glyphosate-resistant (GR) cropping systems (Kruger et al., 2009). Control of GR horseweed prior to conservation tillage planting is particularly challenging, often necessitating the use of other herbicides in addition to, or in lieu of, glyphosate as a pre-plant treatment (Steckel et al., 2006). One such herbicide is dicamba. Only 20% GR horseweed control was reported with glyphosate at 0.84 kg a.e./ha, but 77% control was obtained when dicamba at 0.28 kg a.e./ha was tank-mixed with glyphosate applied at spring planting (Owen et al., 2009). GR horseweed was controlled 90 to 100% 8 weeks after dicamba was applied pre-plant at 0.60 kg a.e./ha (Byker et al., 2013); 93 and 98% control was reported 4 weeks after treatment with dicamba at 0.14 and 0.28 kg a.e./ha, respectively (Everitt and Keeling, 2007).

C. Approval of Dicamba for Use On Dicamba-Tolerant Soybean and Cotton Will Provide Additional Benefits to Farmers

A farmer's choice of herbicide is based on several factors such as efficacy, crop safety, rotational restrictions, convenience, and the ability to use integrated pest management practices. Many farmers will choose dicamba instead of alternative herbicides for the following reasons:

- a) **Herbicide effectiveness:** Dicamba provides control of over 95 annual and biennial weed species and control or suppression of over 100 perennial broadleaf and woody species. While 2,4-D is more effective than dicamba on some weeds, dicamba provides more effective pre-emergent weed control than 2,4-D on cutleaf evening primrose, clover, and chickweed (Loux et al., 2010). Furthermore, dicamba provides better control compared to 2,4-D on summer annuals including those with a prostrate growth habit such as knotweed and purslane. With regard to winter annual weeds, University of Arkansas data indicated that dicamba is more effective in controlling marehail compared to 2,4-D (University of Arkansas, 2011).

Dicamba also provides excellent control of wild buckwheat, while 2,4-D has only limited activity and provides inadequate control (Zollinger, 2006). Other pre-emergent or post-emergent herbicides often provide incomplete control of wild buckwheat including dinitroanilines or PPO inhibitors. The most effective herbicides for buckwheat are dicamba and some sulfonylurea products; however, some of the sulfonylurea herbicides may persist and carry over for more than one growing season, especially in high pH soils.

Dicamba has been valued as more efficacious on lambsquarters than fomesafen, based on university weed control guidelines (Moechnig et al., 2010; University of Illinois, 2008). In addition, dicamba exhibits improved control of sicklepod, kochia and common ragweed, and waterhemp compared to fomesafen.

Dicamba has improved post-emergent weed control and added residual efficacy compared to other commercially available herbicides to control tough broadleaf weeds and weeds that are resistant to glyphosate and other herbicides (Johnson et al., 2010). Residual herbicides, in addition to dicamba, will be recommended in the Roundup Ready® Xtend Crop System. Depending upon crop safety and best management practices for overall weed management, including resistance management, dicamba use may reduce the number of applications of soil residual herbicides needed for season long control of *Palmer amaranth* (e.g. fomesafen, pyriithobac, fluometuron) (L. Steckel 2012, Personal Communication; S. Culpepper 2012, Personal Communication). Currently, multiple applications of residual herbicides are needed because of the lack of effective post-emergent options (Southeast Farm Press, 2009).

- b) **Crop safety:** The proposed use of dicamba in the Roundup Ready® Xtend Crop System in soybean and cotton will allow more flexibility for control of weeds just prior to or at planting of the crop, due to elimination of pre-plant intervals or plant back restrictions on present dicamba labels. These restrictions were in place due to concern over potential crop injury, which would be eliminated by the introduction of the dicamba tolerance trait. Current practice is to use dicamba or 2,4-D for pre-plant burndown of weeds that are present prior to planting cotton. When applied too close to cotton planting, dicamba or 2,4-D can potentially reduce crop stands and cause injury to new seedlings (Thompson et al., 2007). For most dicamba products, a pre-plant interval of 21 days per 0.25 lb a.i. and a minimum of 1" rain prior to planting are required. For 2,4-D, a minimum of 1" of rainfall and a waiting interval of 30 days is required prior to planting with rates up to 1.0 lb a.i. per acre.

- c) **Rotational restrictions:** Some residual and post-emergent herbicides have extensive rotational restrictions of up to 20 months after application to avoid subsequent crop injury to the rotational crop due to herbicide remaining in the soil. These limitations reduce the choice of crops that can be re-planted the same season in case the initial crop is destroyed, or even the crops that may be planted the following growing season. Examples of replanting limitations among four of the alternative herbicides are shown in the table below.

	Planting Restrictions (months) for Some Alternative Herbicide Products			
ROTATIONAL CROP	Reflex (fomesafen-sodium)	Treflan HFP (trifluralin)	Envoke (Trifloxysulfuron-sodium)	Staple LX (pyrithiobac-sodium)
Field corn	10	12 - 20	7	10 - 20
Wheat	4	5	3	4
Soybean	0	same season	7	4 - 12
Peanut	10	5	7	10
Sorghum	10 - 18	12 - 20	12	More than 10
Onions	18	5	18	4 - 12

The combination of dicamba and the Roundup Ready[®] Xtend Crop System will remove pre-plant restrictions providing greater flexibility to farmers and will increase the adoption of dicamba use in pre-plant weed control systems. Dicamba does not have rotational restrictions for such extended time periods, and therefore provides a substantial advantage in flexibility. For the majority of crops, no rotational restrictions apply after 120 days following a dicamba application. In addition, there are no rotational restrictions for planting corn following a dicamba application. The lack of long rotational restrictions allows farmers to keep their land in productive cultivation of crops and avoids unproductive fallow periods, which is of critical importance in selecting which herbicide(s) to use.

- d) **Greater convenience:** Dicamba use in the Roundup Ready[®] Xtend Crop System in soybean and cotton will reduce the need for some herbicides that require use of specialized application equipment such as hooded and directed spray equipment (diuron, paraquat, flumioxazin, MSMA) to prevent crop injury. Hooded sprayers in particular require more time to make herbicide applications and application errors can lead to significant crop damage. In addition, hooded spray rigs employ shorter boom lengths compared to 100-foot spray booms requiring more passes across the field, which in turn use more resources such as labor, fuel, and wear-and-tear on equipment.
- e) **Support integrated pest management practices:** Dicamba use in the Roundup Ready[®] Xtend Crop System in soybean and cotton will continue to support the adoption of integrated pest management (IPM) practices by allowing farmers to continue to focus on post-emergent, in-crop weed control, as they have practiced with glyphosate- and glufosinate-tolerant crops, and making current practices more effective

by providing an additional mechanism-of-action. This will allow farmers to avoid unnecessary herbicide treatments and to delay some herbicide treatments until field scouting indicates a need for additional weed control, which is consistent with the principles of IPM.

In sum, dicamba is a particularly effective herbicide, especially on multiple-herbicide resistant weeds and hard-to-control weeds. The use of dicamba in the Roundup Ready® Xtend Crop System will benefit farmers by controlling resistant weeds and maintaining the durability of currently available weed control options. It will provide environmental and economic benefits by expanding the use of reduced tillage agronomic practices and reducing crop inputs. Thus, the registration of dicamba for use in the Roundup Ready® Xtend Crop System represents a significant opportunity to extend the well-established benefits of herbicide-tolerant cropping systems. The new use of dicamba will improve the management of herbicide-resistant weeds, and thus overall weed management and sustainability of crop production in the United States. It will provide a valuable weed management tool, provide more weed control options for farmers, and help to slow the selection for resistant herbicide genotypes for all herbicide mechanisms-of-action (i.e., ALS, PPO, HPPD, glufosinate, glyphosate) that are currently registered for use in soybean and cotton while supporting the adoption of no-till and conservational tillage practices.

III. A DOWNWIND BUFFER OF 110 FEET IS MORE THAN SUFFICIENT TO PROTECT ENDANGERED SPECIES AND NON-TARGET ORGANISMS

EPA has proposed to mandate a 110-foot buffer in all directions to protect non-target plants and threatened and endangered species from dicamba off-site movement from volatilization and particle drift. Particle drift is also known as spray drift.

EPA concluded that a 100-110 foot downwind buffer was sufficient to address particle drift, but proposed to impose that buffer in all four directions to protect against off-site movement from volatilization (Ecological Risk Assessment for Cotton, EPA-HQ-OPP-2016-0187-0005). For particle drift, Monsanto data confirms that a 110-foot downwind buffer is more than sufficient to protect endangered species and non-target organisms for the TTI 11004 nozzle (MRID 49424601)⁴; for volatility, Monsanto data establishes that no buffer is required to protect endangered species and non-target organisms regardless of wind direction.

EPA's proposed registration stated that "... if EPA receives volatility data under varied conditions of temperature and relative humidity, as these factors play a strong role in volatility under field conditions, it may reconsider whether this mitigation requirement [*in-field buffer in all directions*] is necessary." In response to this request, on April 12, 2016, Monsanto provided EPA with additional volatility data conducted under varied conditions of temperature and relative humidity in key use areas for the Monsanto Dicamba Products. The data demonstrate that a buffer is not necessary to protect against volatilization. Although earlier dicamba products (including Banvel®) had the potential to move off-site through volatilization, multiple lines of evidence demonstrate that there should be no concern of off-site movement due to volatility for the Monsanto Dicamba Products, and that a downwind buffer of 110 feet is more than adequate

⁴ Any nozzle that does not increase the drift potential of M1691 Herbicide relative to the nozzle for which the buffer has been determined should be acceptable

to protect non-target organisms from potential adverse effects when the mandatory application requirements described in the draft M1691 Herbicide label are instituted. These lines of evidence include a laboratory humidome study, flux measurements from field volatility studies, and air modeling to predict off-target air concentrations and deposition due to off-target movement via volatility, as described further below. Thus, EPA should remove the proposed requirement for an omnidirectional buffer and instead retain only a downwind buffer to protect non-target plants and threatened and endangered species in order to prevent unreasonable impacts to U.S. agriculture. As discussed further in Section III.A, a four-sided buffer would impose large costs on growers, and disproportionately impact smaller-scale farms.

A. A Four-Sided Buffer Would Harm Farmers and Agriculture

Requiring a buffer around the entire perimeter of the field would impose substantial complexity, management challenges and potential economic impacts on growers, and large costs on growers and commercial applicators. The percentage of a field that would be occupied by a four-sided buffer is large, regardless of field size, as shown in Table 1. This would leave a substantial area at risk of poor weed control and decreased yield, forcing growers to apply multiple herbicide mixes on every field, at significant financial cost, by using multiple applicator rigs, or frequently rinsing existing rigs.

Table 1. Field Buffer As Percentage of Field⁵

FIELD ACRES	% FIELD TREATED WITH DICAMBA	% FIELD AS BUFFER (4 sides @ 110')
1	0%	100%
5	28%	72%
10	44%	56%
20	58%	42%
40	69%	31%
80	78%	22%
100	80%	20%
120	82%	18%
160	84%	16%
180	85%	15%
200	86%	14%

Critically, field sizes between 10 and 120 acres are common; growers of those fields, in particular, may not be able to economically withstand leaving this portion of their field untreated. Moreover, the percentages in Table 1 assume a square or rectangular field. However, many fields are irregularly shaped, which exacerbates greatly the applicator's ability to observe a buffer on the entire perimeter of the field. These impacts would be disproportionate on smaller scale farmers and farmers with large numbers of small or irregular-shaped fields. It will be impractical to use the technology in many small fields where such a significant portion will require alternative weed control measures. Compliance with the buffer requirements will also be

⁵ These data assume fields are immediately adjacent to sensitive areas on all sides.

challenging in irregular-shaped fields and may result in unintended herbicide application overlaps and gaps.

Moreover, cotton is commonly produced on raised beds which require equipment passes over the field to be in the same direction as the rows. It will be impossible to manage weed control in buffers on the ends of the field with applicator passes perpendicular to the rows. This means the applicator will have to run across the entire field twice- once to apply a dicamba-based herbicide program and a second time to apply a non-dicamba-based program in the buffer areas, resulting in additional labor, fuel, equipment wear and mechanical damage to the crop and soil. Applicators may be able to mitigate some of the challenges posed by buffers around the entire perimeter of the field by installing direct injection systems on existing equipment or purchasing new equipment with this capability. However, this would require significant equipment investments and may not be practical for smaller scale growers.

This buffer requirement will also prevent the use of dicamba-based herbicide programs for management of resistant weed populations on significant numbers of acres. This will limit M1691 Herbicide's utility as a herbicide resistance management tool and allows potential proliferation of resistant weeds that would otherwise be controlled by this technology.

Lastly, Monsanto agrees with EPA that the following areas should be included in the buffer distance calculation when adjacent to field edges:

- Roads, paved or gravel surfaces.
- Planted agricultural fields containing dicamba-tolerant crops and monocot crops such as corn, sorghum, proso millet, small grains and sugarcane.
- Agricultural fields that have been prepared for planting.
- Areas covered by the footprint of a building, shade house, silo, feed crib, or other man-made structure with walls and/or a roof.

B. A Buffer Is Not Needed to Protect Against Volatilization of the Monsanto Dicamba Products.

Monsanto has provided EPA with additional volatility data and exposure modeling for the Monsanto Dicamba Products. EPA previously concluded that volatility is not a major component to offsite movement (EPA-HQ-OPP-2016-0187-0005, pg. 7); this additional evidence demonstrates that there should be no concern of off-site movement due to volatility.

These data provide multiple lines of evidence that the Monsanto Dicamba Products do not require any omnidirectional buffers to address volatility. The flux values, calculated from EPA guideline field volatility studies, are consistent with the assessments of low-exposure concerns previously made by the EPA from the previously submitted and reviewed Theoretical Profile Shape (TPS) method volatility study (MRID 49022501). These GLP guideline studies were conducted under varied environmental conditions (higher temperatures, varied relative humidity, and different soil types in Texas and Georgia), rates (0.5 lb/A and 1.0 lb/A) and agronomic

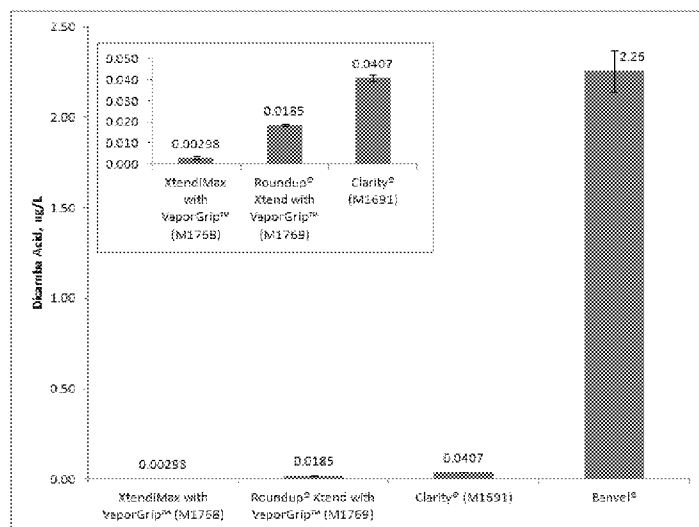
conditions (in-crop and pre-emergence) that are consistent with typical applications in cotton and soybean growing regions. These additional flux values as well as the TPS method flux value are at least two to three orders of magnitude lower than the conservative modeling estimate that was determined by the EPA using the Woodrow equation. These low flux values, obtained under varied environmental conditions, provide additional weight of evidence that M1691 Herbicide is a low-volatility formulation, and that M1768 and M1769 herbicides are also low volatility formulations. These values have been used as input parameters for standard EPA models (PERFUM and AERMOD) to estimate off-site dicamba air concentrations and deposition, respectively. These modeling results, consistent with EPA's assessment using flux values from the TPS study, predict that there would be no effects to non-target plants outside of the treated area on any side of the field, regardless of wind direction. EPA previously concluded that volatility is not a major component to offsite movement; this additional evidence demonstrates that there should be no concern of off-site movement due to volatility. Therefore, an in-field buffer in all directions is not necessary to address volatility; only a downwind buffer for particle drift is necessary to protect non-target organisms and threatened or endangered species.

1. Laboratory (Humidome) Relative Volatility Study Showed Low Volatility Levels, Particularly Compared to Banvel

A laboratory method utilizing a growth chamber under controlled environmental conditions was used to assess the relative volatility of formulated products (Gavlick et al., 2016). This published method has been used to assess the relative volatility of the Monsanto Dicamba Products and Banvel[®] (dicamba dimethylamine (DMA) salt containing formulation) (MRID 49888605). The relative volatility⁶ of four dicamba containing formulations was determined. M1768 Herbicide was approximately three orders of magnitude less volatile than Banvel[®], and over one order of magnitude less volatile than M1691 Herbicide. M1769 Herbicide exhibited half the volatility of M1691 Herbicide (Figure 1).

⁶ The humidome method is designed to assess relative volatility of different formulations. Measured concentrations for a given formulation may vary from study to study.

Figure 1. Relative volatility data

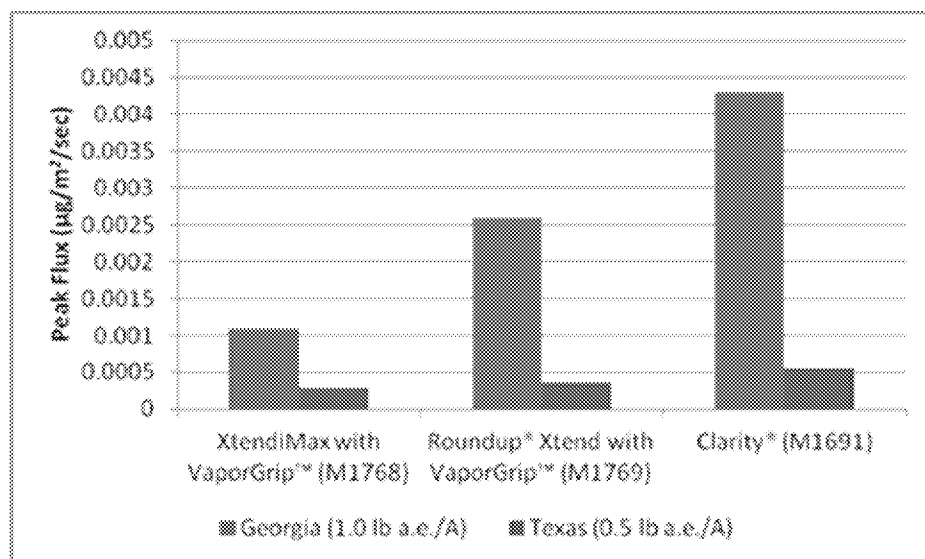


2. EPA Guideline Field Volatility Studies Conducted Under Varied Environmental Conditions Provide Additional Data for the Assessment of Off-Site Movement

Monsanto conducted a total of six new EPA Guideline 835.8100 field volatility studies to support the conclusion that the Monsanto Dicamba Products are low-volatility formulations (MRIDs 49888401, 49888403, 49888501, 49888503, 49888601, 49888603), which is in agreement with the already submitted TPS field volatility study described above (MRID 49022501). The field volatility studies were conducted under varied environmental conditions (higher temperatures, varied relative humidity, and different soil types in Texas and Georgia), application rates (0.5 lb/A and 1.0 lb/A), agronomic conditions (in-crop and pre-emergence) and data was collected over longer duration (3 days). Flux values from these studies were calculated using the EPA Study Profile template.

A comparison of the peak flux values from Texas and Georgia for M1768 Herbicide and M1769 Herbicide shows that these formulations are lower volatility relative to M1691 Herbicide from the same locations (Figure 2) and are consistent with the same formulation volatility trends (M1691 (Clarity) > M1769 (Roundup Xtend) > M1768 (Xtendimax)) observed in the humidome study (MRID 49888605) described above and shown in Figure 1.

Figure 2. Peak Flux Values from field studies conducted in Texas and Georgia



The results from these field volatility studies on the three formulations were used in conjunction with standard EPA models (PERFUM and AERMOD) to demonstrate that there will be no effects outside of the field due to volatilization. The analysis of potential offsite movement of dicamba due to volatility is discussed in more detail in the following section.

3. Modeling of Off-Target Movement Due to Volatility Demonstrates That a Buffer Is Not Necessary to Protect Against Volatilization of the Monsanto Dicamba Products

Flux values calculated from the field volatility studies were used along with a range of weather data to predict off-target movement via volatility. The selected weather conditions used in this assessment represent widely varied weather conditions, covering a broad geographical range representative of soy and cotton-growing regions that represents conservative worst case conditions. The predicted air concentrations and deposition values were then compared to no-effect concentrations/rates to assess distances from the application area that would result in no effects to listed non-target plant species. These analyses are described further below, and demonstrate that no effects of dicamba will occur outside the boundaries of the field.

a. AERMOD Volatility Deposition Modeling Demonstrates That The NOER Is Not Exceeded In Any Direction

Estimates of dry and wet deposition that could potentially occur downwind of an application of the Monsanto Dicamba Products were derived using the U.S. EPA dispersion model AERMOD⁷

⁷AERMOD reports were submitted on May 27, 2016 (MRIDs 49925701, 49925801, and 49925901 for M1691, M1768, and M1769 herbicides, respectively).

considering the application window for dicamba during the year.⁸ The major inputs to AERMOD include the flux rate, which represents the mass off-gassing on an hourly basis after an application, and the meteorological conditions. Flux rates were derived from the field volatility (flux) studies conducted in Georgia and Texas by Monsanto for all three formulations. AERMOD also requires meteorological data files with hourly values for wind speed, wind direction, air temperature, atmospheric stability, and characteristics of the planetary boundary layer. Meteorological files were developed using National Weather Service data sources for Raleigh, North Carolina; Peoria, Illinois; and Lubbock, Texas⁹ which represent a range of key growing areas and widely varied environments.

AERMOD deposition estimates were made for an 80-acre application¹⁰ using hourly weather data from each day of the application window at three locations. Estimates were made at several downwind distances from the edge of the field, including 5, 10, 20, 30, 40, 50, 75, 100, 125, and 150 meters. The estimates represent high-end values that may occur in the direction the wind is blowing during meteorological conditions that are least conducive to gas dispersion (*i.e.*, conditions that maximize offsite deposition – a conservative assumption).

At the Georgia site, the 90th percentile dry deposition at 5 m ranged from 9.55×10^{-7} to 4.55×10^{-6} g/m², and the 90th percentile wet deposition ranged from 2.28×10^{-9} to 4.41×10^{-8} g/m². At the Texas site, the 90th percentile dry deposition at 5 m ranged from 5.77×10^{-7} to 2.12×10^{-6} g/m², and the 90th percentile wet deposition ranged from 2.72×10^{-9} to 1.99×10^{-8} g/m². In all cases, the 90th percentile deposition results were below the NOER for listed non-target plant (2.91×10^{-5} g/m²) in the downwind direction and represent worst case exposure estimates. Deposition from volatility in other directions would be even lower than levels predicted in the downwind direction, and thus the deposition would be less than the NOER in all directions from the spray area. Based on this analysis, the NOER is not exceeded in any direction; therefore, no buffer whatsoever is required to protect non-target organisms from any potential effects due to volatility. Moreover, such a four-sided buffer would impose large and unnecessary costs on growers, and would disproportionately impact small-scale farms.

⁸ Since dicamba is only applied for this use during the growing season, the deposition values were only determined during the following time periods: Lubbock, TX (May 1 – Jan. 4); Peoria, IL (Apr. 1 – Jul. 31); Raleigh, NC (Apr. 1– Dec 8.). Time periods that extend into the winter are the result of the extended application window of cotton versus soybean.

⁹ Phoenix, AZ is included in the PERFUM modeling described below but was not included in the AERMOD assessment for two reasons: (1) cotton growing regions were already represented by the Texas and Raleigh scenarios; and (2) the air concentrations from Phoenix were comparable to the air concentrations from either Raleigh or Peoria, depending on the averaging period, and thus the Phoenix site was not modeled.

¹⁰ AERMOD deposition estimates were based on application rates of 1.0 lb a.e./A for the Georgia site and 0.5 lb a.e./A for the Texas site.

**b. Additional Analysis of Dicamba Air Concentrations
from Volatility Demonstrate That There Would Be No Effects
Outside the Field From Volatilization**

To assess potential effects to non-target plant species as a result of exposure to dicamba in air, predicted off-target dicamba air concentrations were compared to a vapor phase no effect concentration (NOEC) for soybean, the plant species most sensitive to dicamba. The vapor phase NOEC was determined from a study designed to evaluate the relationship between dicamba vapor concentrations and plant effects. Dicamba air concentrations were estimated outside the spray area using the U.S. EPA model PERFUM.¹¹ The NOEC was not exceeded in the downwind direction and thus would not be exceeded in any other direction; as such, a buffer in all directions is not necessary to protect threatened or endangered species and non-target organisms from the effects of volatilization from the Monsanto Dicamba Products. Additional details regarding the air concentration plant effects study used to determine the vapor phase NOEC and the off-target vapor modeling are provided below.

Monsanto recently conducted and submitted a humidome study (MRID 49925703, submitted to EPA on May 27, 2016) to generate laboratory-based data to determine the relationship between dicamba vapor concentration and crop response. The results of this study determined a no-effect concentration of at least 17.7 ng/m³ for a 24-hour period, which served as a basis of comparison to the air concentration estimates from the PERFUM modeling analysis described below for the Monsanto Dicamba Products.

Air concentration estimates that could potentially occur downwind of an application of the Monsanto Dicamba Products were derived using the Probabilistic Exposure and Risk model for FUMigants (PERFUM) considering the application window for dicamba for the year.¹² The major inputs to PERFUM include the flux rate, which represents the mass off-gassing on an hourly basis after an application, and the meteorological conditions. Flux rates were derived from the field volatility (flux) studies conducted in Georgia and Texas by Monsanto for all three formulations, as described above. PERFUM requires meteorological data files for a multiyear period with hourly values for wind speed, wind direction, air temperature, atmospheric stability, and mixing height. Meteorological files were developed using U.S. Environmental Protection Agency data sources for Raleigh, North Carolina; Peoria, Illinois; Lubbock, Texas; and Phoenix, Arizona which represent a range of key growing regions and widely varied environments.

¹¹ PERFUM reports were submitted on May 27, 2016 (MRIDs 49925702, 49925802, and 49925902 for M1691, M1768, and M1769 herbicides, respectively).

¹² Since dicamba is only applied for this use during the growing season, the deposition values were only determined during the following time periods: Lubbock, TX (May 1 – Jan. 4); Peoria, IL (Apr. 1 – Jul. 31); Phoenix, AZ (Mar. 1 to Dec. 18); Raleigh, NC (Apr. 1– Dec 8.). Time periods that extend into the winter are the result of the extended application window of cotton versus soybean.

PERFUM air concentration estimates were made for an 80-acre application¹³ at several downwind distances from the edge of the field, including 5, 10, 25, and 50 meters. The air concentration estimates presented are the 95th percentile¹⁴ (95% of air concentration values would be lower) of all values at a given distance from the field, considering all wind directions and all the meteorological data for a given site. Thus, the estimates represent high-end values that may occur in the direction the wind is blowing during meteorological conditions that are least conducive to gas dispersion (*i.e.*, conditions that maximize offsite air concentrations – a conservative assumption). Additionally, air concentration estimates were made for four different averaging times, including 1, 4, 8, and 24 hours.

The 24-hour air concentration estimates at the nearest distance predicted by the model range from 1.5 to 16.1 ng/m³, which are less than the no-effect concentration of at least 17.7 ng/m³ determined in a laboratory (humidome) plant effects study (described above).

Air concentrations from volatility in other directions would be even lower than the concentrations predicted in the downwind direction since dicamba vapor is carried with the wind in the downwind direction, and thus air concentrations would also be lower than the NOEC at all other directions from the spray area. Based on this conservative exposure estimate, the NOEC is not exceeded in the downwind direction (*i.e.*, conditions that maximize offsite air concentrations – a conservative assumption) and would not be exceeded in any other direction, regardless of whether wind direction changes after application; therefore, a buffer in all directions is not necessary in order to sufficiently protect threatened or endangered species and non-target organisms from the effects of volatilization from the Monsanto Dicamba Products.

4. Any Effects of the Monsanto Dicamba Formulations From Off-Site Movement Are Limited to Downwind Particle Drift at the Time of Application

The results from these additional lines of evidence for the Monsanto Dicamba Products – including laboratory (humidome) volatility studies, field volatility studies, and off-target movement modeling – demonstrate that there should be no concern of off-site movement due to volatility. Any potential effects from movement of the Monsanto Dicamba Products therefore only occur in a downwind direction at the time of application, and the Monsanto Dicamba Products do not leave the field in any other directions at levels that could impact non-target organisms or threatened or endangered species. Furthermore, the field volatility studies and off-target modeling consider varied temperature and relative humidity conditions, as specified by U.S. EPA. As such, a downwind buffer for particle drift is protective of any potential effects to non-target organisms and threatened and endangered species, and no buffer at all is necessary to

¹³ PERFUM air concentration estimates were based on flux values from studies with application rates of 1.0 lb a.e./A for the Georgia site and 0.5 lb a.e./A for the Texas site.

¹⁴ EPA exposure assessments typically consider the 90th percentile value (US EPA, 2013) as representative of an appropriate level of conservatism for assessment of exposure. Thus, use of the 95th percentile value represents an even more conservative assessment. Use of either 90th or 95th percentile values is consistent with the recommendation of the National Academy of Science panel (NRC, 2013) that recommended the use of probabilistic risk assessment.

protect non-target organisms or threatened or endangered species from the effects of volatilization of the Monsanto Dicamba Products. Any buffer, other than a downwind 110-foot buffer at the time the Monsanto Dicamba Products are applied, would be unnecessary and unreasonably restrictive to growers.

C. The Available Data on Particle Drift Support That a Downwind Buffer of No More Than 110-Feet at the Time of Application Is More Than Sufficiently Protective

Monsanto previously submitted multiple lines of evidence to support that a downwind buffer of 110 feet will be protective of potential adverse effects to non-target organisms and threatened or endangered species (MRID 49292801, MRID 49424601). Specifically, a 70-foot buffer will be protective of potential adverse effects from ultra coarse droplets, and a 110-foot buffer will be protective of potential adverse effects from extremely coarse droplets. Therefore, a 110-foot buffer will be protective of adverse effects from both ultra coarse and extremely coarse droplets.

The lines of evidence previously submitted to EPA included deposition curves derived from both generic¹⁵ and dicamba-specific particle drift deposition data used in conjunction with the most sensitive endpoint from the DGA salt vegetative vigor study to estimate a no effect distance. Chemical deposition data included data from a 1993 Spray Drift Task Force trial using an extremely coarse nozzle, data from Agriculture, Agri-Food Canada trials conducted in 2000 at relevant weather conditions using an extremely coarse nozzle, and data from a dicamba diglycolamine salt-specific BASF field deposition study (MRID 49067704) using the TTI nozzle. Collectively, these lines of evidence indicate that a downwind buffer distance of 110 ft for dicamba applications at a rate of 0.5 lb a.e./A is more than adequate to protect non-target organisms from potential adverse effects when the mandatory application requirements described in the draft M1691 Herbicide label are instituted¹⁶. This conclusion is further supported by plant effect studies conducted under strict data quality standards (MRID 48876001). Furthermore, the data collected to support these lines of evidence were collected under protocol following GLP methods or implemented strict data quality measures and should be given greater weight than ancillary information obtained from product development research or incident reports that lack sufficient detail to fully reproduce the conditions of the dicamba applications.

¹⁵ Particle drift is primarily influenced by the drop size distribution that results from a solution being sprayed through a nozzle. Generic deposition data are appropriate for a broad range of spray solutions provided that the data used to generate the generic deposition curve have a similar drop size classification to that produced by a spray nozzle. This approach is consistent with the approach used in standard EPA exposure assessments that utilize generic spray deposition curves in AgDRIFT.

¹⁶ Monsanto has also submitted product-specific field deposition studies for M1768 (Submitted November 19, 2015; MRID 49770301) and M1769 (Submitted April 12, 2016; MRID 49888606) herbicides that provide evidence that the no-effect distances are less than the 110-foot downwind buffer distance for both M1768 and M1769.

D. Information from Product Development Research and Extraneous Incidents Do Not Undermine the Sufficiency of a 110-Foot Downwind Buffer for Particle Drift, and No Buffer for Volatility

1. M1691 Herbicide Was Not Used Alone in the Product Development Research

Monsanto agrees with EFED that data generated as part of product development research – including academic field trials – is not suitable for regulatory decision-making (see EPA-HQ-OPP-2016-0187-0005, pg. 25); no attempts were made to comply with rigorous data quality standards or EPA test guidelines, and no formal study reports were generated. The data do not meet the standards of CFR Parts 158 and 160 and are wholly unsuitable for use in EPA’s decision-making process for the registration of M1691 Herbicide.

Indeed, it is important to recognize that the ‘field trials’ that EPA references were conducted to understand and refine components (nozzles, formulations and spray mixtures, label restrictions) of the Roundup Ready® Xtend Crop System – components that ultimately will become part of the label requirements for the product. As such:

- M1691 Herbicide alone was not used in any of the field trials;
- Experimental formulations that were evaluated are not being commercialized;
- There has been no confirmation that these treatments have droplet size distributions that would fall within the acceptable range compared to the droplet size distribution of the spray mixture on which the 110 ft buffer is based; and
- In all cases not all currently proposed label requirements were met.

These field trials are a critical part of product development, and are essential to help determine the appropriate conditions and requirements for the product to ensure appropriate stewardship. Moreover, these field trials necessarily must include some level of “trial and error” – such that incidents are expected to occur. It therefore would be profoundly inappropriate for EPA to use these field trials – which are not representative of the product that will be sold or consistent with the requirements of the label – to make determinations about potential off-target movement, and therefore about appropriate buffers or other label conditions. Pesticide manufacturers should not be penalized for conducting critical research that informs the ultimate label requirements.

2. EPA’s Analysis of Field Trial Data Did Not Consider Dose Response

Even if the field trial data were considered, a rigorous modeling approach would show no adverse effects beyond 110 feet (MRIDs 49570501 and 49570502), with one exception likely caused by important differences between the experimental formulation and M1691 Herbicide, including the surfactant loading and potential differences in the drop size distribution. These data support that a 110 ft. downwind buffer is protective of sensitive crops and threatened and endangered species.

Off-target movement was evaluated by spraying a block of sensitive soybean plants in the middle

of a much larger field, and then taking measurements on quantitative endpoints (e.g., plant height, yield) downwind. If off-target movement was sufficient to impact plants downwind, distance-dependent variation in plant height (or yield) was observed (i.e. a dose-response, Figure 3). If off-target movement was not sufficient to impact plants downwind, variation in plant height (or yield) was independent of distance (Figure 4). The absence of a distance-dependent relationship (i.e. no dose response) indicates that the level of dicamba exposure was not sufficient to impact plants, *even immediately adjacent to the spray application*.

Figure 3. An example of distance-dependent variation in yield (i.e. a dose-response) and illustration of the segmented regression analysis.

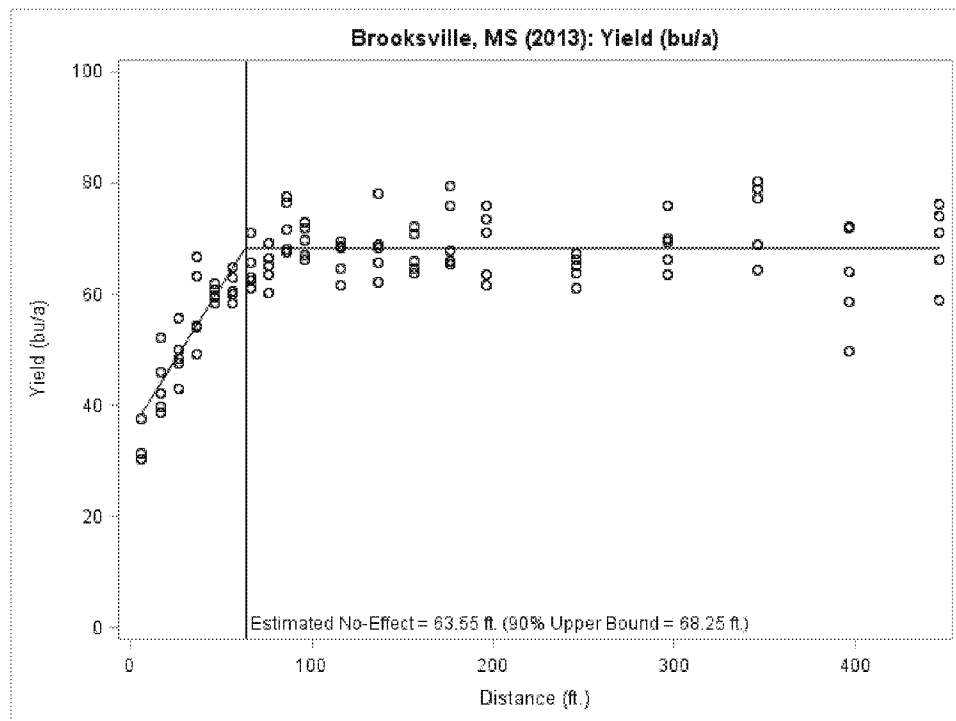
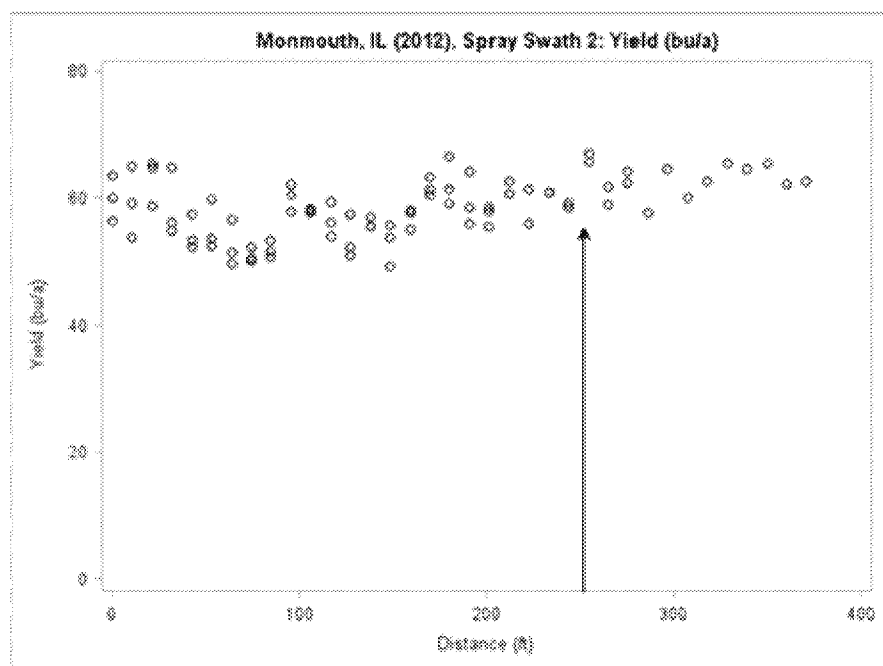


Figure 4. A lack of distance-dependent variation in yield (i.e. no dicamba effect). EFED’s use of hypothesis testing led to purported effects on yield up to approximately 250 ft., indicated by the arrow.



Applying a segmented regression modeling approach (illustrated in Figure 3), there are no adverse effects on non-target plant growth or reproduction beyond 110 feet, with the exception of one spray application. This exception likely was caused by dissimilarities between the spray mixture used in the field and M1691 Herbicide, as discussed in greater detail at the end of this section.

In their analysis, however, EFED employed a hypothesis testing method which used two-sample t-tests (one-tailed, $\alpha=0.1$) to compare plant height and yield at each measured distance to “control groups”, represented by the two farthest distances downwind of the spray application. The “no-effect” distance for a given site was considered to be the first distance greater than the furthest distance downwind which had a significant decrease compared to the control group. Based on this analysis and without evaluating or considering dose-response, EFED concluded that several of the field trials provided evidence that a 110-foot buffer might not be sufficient to protect listed species. But consideration of a dose-response is especially important in a field situation where non-uniformity in soil type, soil moisture content, soil compaction, soil fertility level, crop emergence, etc. may cause an increase or decrease in plant height or yield in a small area of a field, completely independent of any exposure to dicamba. With the potential for this type of variability, it is important that samples not be evaluated individually against a control, but rather the evaluation should consider the response across the field in its entirety.

As a result, the hypothesis testing method employed by EFED had an uncontrolled and unknown Type 1 error rate (i.e., the rate of false positives) and generated no-effect estimates that were, at least in part, an artifact of the experimental design (i.e., results were dependent on the distances

at which measurements were taken). Consider the analysis of the second spray swath for yield at Monmouth, Illinois (Figure 4). In this trial, measurements were taken at 35 downwind distances. Using EFED's one-tailed t-test approach, yield was un-impacted at the highest levels of dicamba exposure – the p-values for the first three distances immediately downwind of the spray were 0.22, 0.40, and 0.18, respectively. Considering the entire dataset, variation in yield is clearly independent of distance and a conclusion of no adverse effect is warranted. Nonetheless, EFED proceeded with an analysis consisting of 33 unprotected hypothesis tests using a “control group” with 2 plants. One concern when making several comparisons in a single analysis is whether significant differences are due to real differences or simply the result of making a large number of comparisons. Making a large number of comparisons increases the chance of finding differences that appear to be significant when they are not. With an α -level of 0.10 and assuming the tests were independent, we would expect to find $(0.10)(33) = 3.3$ significant differences even in the absence of any real dicamba effect. The family-wise error rate is $1 - 0.90^{33} = 0.9691$. This means that the probability of making at least one false claim of a dicamba effect is approximately 97%. Further complicating the interpretation is the fact that these hypothesis tests are not independent, because yield is correlated in space. This dependence between the 33 hypothesis tests and the inadequate level of replication in the control group have the potential to inflate the Type 1 error rate a very large, but unknown amount. P-values cannot be interpreted within the framework of hypothesis testing when the Type 1 error rate is unknown and uncontrolled. The conclusions at this and all other sites are therefore suspect. In addition to the limitations and weaknesses of the statistical analysis, site-specific considerations are discussed below.

Rower, AR

M1691 Herbicide was not evaluated in this field trial. Additionally, no dose-response was observed; yield was un-impacted at the highest levels of dicamba exposure (immediately adjacent to the spray application).

The result from EPA's analysis in Rower is not supported by other measured endpoints. Based on EPA's analysis, the no-effect distances for plant height, the most sensitive endpoint from the vegetative vigor study with Clarity, were 7.9 and 20.6 ft. for 14 and 28 DAT, respectively.

Combined with the limitations and weaknesses of the statistical analysis conducted by EFED (see above), data from this site do not undermine the sufficiency of a 110-foot downwind buffer for protection of non-target plants and threatened and endangered species.

Kirkwood, IL

M1691 Herbicide was not evaluated in this field trial. Additionally, variation in plant height was independent of distance after approximately 50 ft.

The result from EPA's analysis in Kirkwood is not supported by other measured endpoints. Based on EPA's analysis, the no-effect distance for yield was 16.25 ft.

Combined with the limitations and weaknesses of the statistical analysis conducted by EFED (see above), data from this site do not undermine the sufficiency of a 110-foot downwind buffer for protection of non-target plants and threatened and endangered species.

Monmouth, IL Swath 1

M1691 Herbicide was not evaluated in this field trial. Instead, the trial used an experimental formulation that has difference surfactant properties and potentially a different droplet size distribution than M1691 Herbicide.

The result from EPA's analysis in Monmouth Swath 1 is not supported by other measured endpoints. Based on EPA's analysis, the no-effect distances were 74.2 and 0 ft. for plant height 14 DAT and yield, respectively.

Combined with the limitations and weaknesses of the statistical analysis conducted by EFED (see above), data from this site do not undermine the sufficiency of a 110-foot downwind buffer for protection of non-target plants and threatened and endangered species.

Monmouth, IL Swath 2

M1691 Herbicide was not evaluated in this trial. Instead, the trial used an experimental formulation that has difference surfactant properties and potentially a different droplet size distribution than M1691 Herbicide. Additionally, no dose-response was observed; instead, yield was un-impacted at the highest levels of dicamba exposure (immediately adjacent to the spray application).

The result from EPA's analysis in Monmouth Swath 2 is not supported by other measured endpoints. Based on EPA's analysis, the no-effect distances for plant height, the most sensitive endpoint from the vegetative vigor study with Clarity, were 53 and 95.4 ft. for 14 and 28 DAT, respectively.

Combined with the limitations and weaknesses of the statistical analysis conducted by EFED (see above), data from this site do not undermine the sufficiency of a 110-foot downwind buffer for protection of non-target plants and threatened and endangered species.

Haubstadt, IN Swath 2

M1691 Herbicide alone was not evaluated in this trial. Spray application was made under environmental conditions (e.g., wind speed) that are not compliant with draft label requirements for M1691 Herbicide.

The result from EPA's analysis in Haubstadt Swath 2 is not supported by other measured endpoints. Based on EPA's analysis, the no-effect distances for plant height, the most sensitive endpoint from the vegetative vigor study with Clarity, were 40 and 80 ft. for 14 and 28 DAT, respectively.

Combined with the limitations and weaknesses of the statistical analysis conducted by EFED (see above), data from this site do not undermine the sufficiency of a 110-foot downwind buffer for protection of non-target plants and threatened and endangered species.

Lastly, it is also important to note that the spray solutions included in the academic trials were not consistent with the draft M1691 Herbicide label (i.e., M1691 Herbicide was not sprayed

alone in any of the academic trials) and are not directly relevant to the proposed M1691 Herbicide registration. Furthermore, there has been no confirmation that the droplet size distributions in these treatments would fall within the acceptable range compared to the droplet size distribution of the spray mixture on which the 110-foot buffer is based.

3. Reported Impacts From Specific Sites Are Due to Uses That Are Inconsistent With Current Proposed Label Conditions

The incident data discussed by EPA for specific sites were not compiled for the purpose of being included in EPA's risk assessment for listed species. The site-specific incident information that was reported does not have the same quality measures (e.g., full data documentation, study protocols, QA/QC, study reports) in place as the regulatory studies, and therefore is not suitable for inclusion in EPA's risk assessment. *All incident information reported to EPA appeared to result from applications that were inconsistent with current label application requirements. In other words, there were no incidents reported when current proposed label application requirements were met.* (See MRID 49570501, submitted to EPA April 13, 2015.)

The Missouri Department of Agriculture (MDA) reported incidents occurring from 2013 to 2015, and the Arkansas Plant Board (APB) reported incidents occurring in 2015. As discussed by EPA, eight of the 15 total incidents were reported to be a result of a single instance of post-emergent dicamba application to DT-cotton of Strut herbicide mixed with glyphosate and applied at two times the labeled rate for proposed M1691 post-emergent use (EPA-HQ-OPP-2016-0187-005, p.32). The remaining incidents were reported to be from pre-emergent applications of dicamba, or it is unknown as to whether any dicamba applications were made. In its investigation of a 2014 incident, MDA determined that it is uncertain whether the damage observed was due to dicamba or another cause. A 2013 incident reported by MDA is discussed in further detail below.

MO Case File #81513M00701/EIIS Incident #I026579-001

The MDA notified EPA of an incident in 2013 in which it was alleged that damage was observed in a non-DT soybean field from a nearby application of M1691 Herbicide (Clarity®). The final report executed by MDA to EPA did not determine any cause of the damage. However, EPA has indicated that, in a subsequent communication reported by EPA (2015 letter from D. Slade, MDA to Grant Rowland, EPA), MDA concluded that the reported damage was caused by off-site movement due to volatilization. It is not clear what additional information was provided to make this determination, or why it was not included in the final MDA written report of the investigation, but a number of factors indicate that the damage observed on the non-DT soybean field was not caused by the M1691 Herbicide application, consistent with the conclusion in the final MDA report.

First, typically plant response in particle drift or volatilization incidents gradually diminishes as the distance from the herbicide application increases (Sosnoskie et al., 2015). In this incident, however, the plant response did not exhibit a gradual decline in the extent of plant response. Instead, there was evidence of slight crop response in soybeans directly east of the sprayed field; however, after a very short distance, all crop response stopped and was not seen in the remainder of the distance (890 yards) between the sprayed field and the non-DT soybean field. This is not

consistent with vapor drift, as vapor drift generally results in a gradual diminishment of symptoms as one moves further from the source.

The non-DT soybean field is east of the seed production field in question, and during the time of the dicamba application, the wind was blowing from the southeast. The wind direction was verified from independent weather records from three University of Missouri Extension Centers. Wind from the southeast direction would carry any drift from the sprayed field to the northwest, not to the east where the claimant's field is located.

Last, and most importantly, crop visual response was observed on the non-DT soybean field before the dicamba application was made. Plant dicamba residue data also were inconclusive. Plant samples were taken from the non-DT soybean field for analysis of pesticide residue, and of the 3 samples taken and analyzed only one had a dicamba level above the limit of detection. Therefore, it could not be confirmed there was any dicamba present in the other two samples. A county road runs to the west of the claimant's field, bisecting the area of crop response, which included the northeastern corner of the seed production field. No samples were taken from west of the road, in an area that exhibited similar symptoms. Therefore, the limited available plant dicamba residue data does not link dicamba exposure to the visual response observed.

EPA also noted that volatilization at this site may have occurred due to climatic conditions following the application which fall outside the range of conditions for which EPA has data. Monsanto has submitted field volatility studies conducted in Texas under conditions favoring volatility, including high heat and humidity. Historical weather data for Bernie, MO, as reported at the Poplar Bluff Municipal Airport for the week following the spray application date reported in MO Case File #81513M00701, EHS Incident report number I026579-001 was compared to temperature and relative humidity conditions from an application of M1691 Herbicide from a 2015 field volatility study conducted in Texas (June 8 – 11, 2015) (MRID 49888403). The ranges (minimum and maximum) of mean daily temperature, maximum daily temperature, mean relative humidity, and maximum relative humidity reported in the week following the application of dicamba for MO Case File #81513M00701, EHS Incident report number I026579-001 were comparable to conditions reported for the M1691 Herbicide field volatility study. As such, based on the results of the M1691 Herbicide flux study conducted in Texas, along with the subsequent AERMOD and PERFUM modeling, a downwind buffer is more than adequate to be protective of non-target organisms. It is highly unlikely that crop damage reported in MO Case File #81513M00701, EHS Incident report number I026579-001 was the result of off-site movement of dicamba through volatility.

This comparison of temperature and relative humidity data is summarized in Table 2.

Table 2: Temperature and Relative Humidity Data Comparison; Bernie, MO and M1691 Herbicide Volatility Study (TX)

	Bernie, MO July 5-11, 2013		M1691 Volatility Study (TX) June 8-11, 2015	
	Min	Max	Min	Max
Maximum Daily Temperature (F)	87	95	78	98
Average Daily Temperature (F)	76	86	73	83
Maximum Relative Humidity (%)	85	94	89	99
Mean Relative Humidity (%)	66	75	51	86

E. Other Lines of Evidence Also Support the Sufficiency of 110-Foot Downwind Buffer For Particle Drift Only

1. The Published Literature Does Not Show High Vapor Drift for Dicamba Resulting in Non-Target Plant Injury

In the Ecological Risk Assessments for Dicamba-Tolerant Cotton and Dicamba-Tolerant Soybean, EPA has stated that papers in the published literature demonstrate that there is high vapor drift from soybean fields resulting in non-target plant injury: “It is important to note that multiple literature studies show that there is a high vapor drift from soybean fields resulting in non-target plant injury.” EPA cited the following studies in support of this conclusion: Al-Khatib and Tamhane, 1999; Auch and Arnold, 1978; Everitt and Keeling, 2009; Kelley et al., 2005; Hamilton and Arle, 1979; Lanini, 2000; Marple et al., 2008; Wall, 1994; Weidenhamer et al., 1989; and Wax et al., 1969. Importantly, however, *none* of these literature references support the conclusion that there is “high vapor drift from soybean fields.”¹⁷ In fact, none of these studies quantified or assessed vapor drift in any way. All of the reviewed papers intentionally made direct applications of dicamba at low rates to simulate particle drift – not volatilization – in order to assess plant effects at known rates. One of the papers (Auch and Arnold, 1978) described a survey of farmers regarding drift, but did not distinguish between particle drift and volatility. In addition, only four of the nine reviewed papers were even conducted with soybeans. These peer-reviewed journal articles do not support the conclusion that “there is high vapor drift from soybean fields resulting in non-target plant injury.”

¹⁷ The Lanini, 2000, reference was from the Proceedings of the Annual Meeting of the California Weed Science Society rather than a peer-reviewed journal and was not readily available for review.

2. The Buffer Distance for Vapor Movement Estimated From Egan and Mortensen Is Incorrect

The Ecological Risk Assessments for Dicamba-Tolerant Soybean (MON 87702) and Dicamba-Tolerant Cotton (MON 87791) rely upon a peer-reviewed literature paper by Egan and Mortensen (2012) to conclude the following regarding the buffer distance sufficient to reduce exposure below the soybean NOAEC from dicamba vapor movement:

“Based on damage assessments of non dicamba-tolerant soybean plants near treated fields after spray drift from a 0.5 lb/A DGA salt application had dissipated, the authors estimated the exposure at distance by correlation to known dose-damage correlations. They estimated that the 95% upper bound vapor exposure would drop below the soybean NOAEC at approximately a distance of 25 meters (82 feet).”¹⁸

Although not directly stated in the dicamba risk assessment documents, it appears that EPA may have used this distance estimate to support the need for an in-field buffer of 110 feet in all directions to be protective of potential effects to non-target plants outside the field due to volatilization. The use of a 25 meter distance to define a buffer based on the 95% confidence interval from this study is inappropriate for three reasons. First, the bootstrap procedure used to generate this confidence interval is well-known to be inconsistent (e.g., Andrews 2000; Hall & Miller 2010) when the parameter (i.e. amount of dicamba) is at or near the boundary of the parameter space (i.e. 0 g a.e./ha). Figure 4c of Egan and Mortensen (2012) shows that all empirical measures of dicamba were at or near zero after approximately 15 meters. Thus, the bootstrap is attempting to put a confidence interval around 0 – the boundary of the parameter space – and there is no way of knowing if the procedure converged to the value that it was designed to estimate. Because of this uncertainty around estimation of the 95% confidence interval, it is inappropriate to use this endpoint to set a buffer distance. Second, if the predicted dose, rather than the 95% confidence interval, is considered, the predicted dose 3 meters from the edge of the plot (0.11 g/ha at 15 m from the center of the plot¹⁹) is well below the NOAEC for the most sensitive non-target plant endpoint (0.29 g a.e./ha for foliar exposure of soybeans), indicating no effects outside the treated area would be predicted. Third, since 25 meters is measured from the center of the plot, even if the 95% confidence interval was used, the actual distance from the edge of the plot would be 13 meters (42 feet) not 25 meters. Based on the points above, the results from the Egan and Mortensen (2012) paper support the conclusion that a

¹⁸ Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Proposed Post-Emergence New Use on Dicamba-Tolerant Soybean (MON 87702), at p. 10; Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 87701), at p. 29.

¹⁹ The distances cited in Table 3 of the Egan and Mortensen paper (2012) were measured from the center of the dicamba-treated area not the edge. The legend to Table 3 of the paper clearly states that “Distance is from the center of the treated plot, and distance >12 m are located outside of the treated plot.” Adjusting distances for distance from the edge of the plot, rather than the center, 15 meters becomes 3 meters, and 25 meters becomes 13 meters.

buffer is not required to protect non-target plants outside the field from dicamba vapor movement.

IV. EPA’S RISK ASSESSMENTS ARE SCIENTIFICALLY-SOUND AND SUPPORTED BY THE LAW

A. EPA’s Approach to the Risk Assessments Is Scientifically-Sound and Well-Supported

EPA’s registration of M1691 Herbicide for dicamba-tolerant soybean and cotton is based on extensive toxicity and ecological effects evaluations. As part of this process, EPA requires data on environmental fate, 40 C.F.R. §158.1300, and ecological effects on non-target terrestrial and aquatic animals, *id.* at §158.630, and non-target plants, *id.* at §158.660. EPA also specifically focuses on potential effects a pesticide may have to listed species by conducting thorough ecological risk assessments. EPA’s Environmental Fate and Effects Division (EFED) conducted EPA’s assessments of both ecological effects and exposure, to evaluate whether M1691 Herbicide may affect listed species. Where, based on its ecological risk assessment, EPA concluded that M1691 Herbicide would have “no effect” on listed species, it ended its endangered species assessment. Where EPA concluded, instead, that M1691 Herbicide “may affect” but was “not likely to adversely affect,” a species, it conducted further analysis and informal consultation with the U.S. Fish & Wildlife Service (the “Service”). Where EPA concluded that M1691 Herbicide “may affect” and was “likely to adversely affect” a species, EPA imposed a label restriction preventing dicamba from being applied in that county.

For screening-level and some higher tier assessments, EPA has developed specific methods for calculation of estimated exposure concentrations. These methods are highly conservative and specifically designed to overstate—and not understate—concentrations that may be present in the environment. EPA also has defined methods for conducting toxicity studies as required by 40 C.F.R. part 158. Designated species within different taxonomic groups of non-target organisms are routinely used in the mandated toxicity studies. The designated species are surrogate species, and have been selected for a number of reasons, including relative sensitivity in a class of organisms, as well as availability and amenability to routine laboratory testing. Especially in the case of threatened or endangered species, it would not be possible to conduct toxicity tests with the species itself.

Because values from the same exposure models and toxicity studies are used, EPA typically conducts the screening-level FIFRA general ecological assessment and the threatened and endangered species assessment at the same time. While the safety standards under FIFRA and the ESA are different, EPA uses the screening-level assessment as the first step of both assessments. This is because the first step is a “worst-case” assessment: If an herbicide passes this worst-case screening-level assessment, EPA can conclude that the herbicide will have “no effect” on threatened and endangered species or their habitats under the ESA, and will not cause unreasonable adverse effects to the environment under FIFRA.

As a general matter, EFED’s initial screening-level assessments are based, in large part, on levels of concern (LOC) for listed species, which indicate the level of pesticide use at which listed species “may be potentially affected by use.” EPA, Office of Pesticide Programs, Overview of

the Ecological Risk Assessment Process in the Office of Pesticide Programs: Endangered and Threatened Species Effects Determinations, 46 (Jan. 2004). The acute LOC for listed species is just a fraction of the LOC for non-listed species. *Id.* at 47. If the LOC is triggered for a species within a taxonomic group, EPA conducts further analysis for that entire taxa.

In performing a screening-level assessment, EPA compares the toxicity value from the most sensitive species tested for a class of organisms to exposure values derived from worst-case exposure scenarios. Further, to add further conservatism to the protection of threatened and endangered species, EPA adds an additional safety factor when evaluating acute risk (10x for aquatic animals, 5x for terrestrial animals) so that the threatened and endangered species under investigation is assumed to be far more sensitive than the most sensitive organism tested. As a general rule, this assumption will substantially overstate the potential adverse effects of the herbicide to the threatened or endangered species.

In addition, in estimating the amount of exposure of the species to the herbicide, EPA assumes that the herbicide will be used in proximity to the threatened and endangered species, and that it will be applied at the highest rate of application and number of applications permissible. Again, these assumptions generally overstate the amount of exposure because the herbicide may not be used near the species' habitat, or at the highest application rate or highest number of applications. Thus, the amount of actual exposure may be considerably less than the amount estimated using the worst-case assumptions.

If, using these conservative worst-case assumptions, the screening-level assessment shows that no direct or indirect effects on threatened and endangered species are indicated, EPA can conclusively rule out the potential for adverse effects and properly conclude that there will be "no effect" on threatened and endangered species or critical habitat from use of the herbicide. Thus the screening-level assessment is used to identify herbicide use scenarios where adverse ecological effects are not expected to occur. An herbicide that passes the screening-level assessment is deemed acceptable for use under both FIFRA and the ESA, and both the FIFRA assessment and the threatened and endangered species effects determination are concluded.

If the screening-level assessment does not result in a "no effect" determination, EPA does not conclude that an herbicide "may affect" threatened and endangered species. Instead, EPA conducts a more refined risk assessment, replacing some of the generic worst-case assumptions which are designed to overstate potential exposures dramatically, instead using more site-specific, real-world information pertaining to potential exposure (such as the application rates used under normal agricultural practice; herbicide usage data compiled by the relevant State; the proximity of herbicide use in relation to the habitat of the threatened and endangered species; the results of monitoring for the herbicide in the environment, particularly in or near the species habitat; and the impact of label use restrictions in reducing exposure). Where available, the refined assessment also uses toxicity information relating to the species under examination, in order to assess whether use of an herbicide may have an effect on the listed species.

In an abundance of caution, EPA adopted an even more conservative approach here. Specifically, for each state in which M1691 Herbicide is proposed to be registered, EPA evaluated which threatened or endangered species might be present in the state. EPA then evaluated whether those species might be present on or near fields where M1691 Herbicide could potentially be

used. Where there was overlap between the species and potential usage, EPA conducted a detailed evaluation of the species' habitat requirements, life cycle, dietary needs, etc. Based on that analysis, EPA determined whether there would be “no effect” on the TES (in which case EPA's inquiry concluded), M1691 Herbicide “may affect” but is “not likely to adversely affect” the TES (in which case EPA consulted informally with FWS and obtained the Service's concurrence with its conclusion) or “may affect” and is “likely to adversely affect” the TES, in which case M1691 Herbicide usage is prohibited in the relevant county.

B. EPA's Authority for a Mitigated No-Effect Finding Is Well-Established

In relying upon maximum use scenarios, EPA's no effect determinations already take into account multiple M1691 Herbicide label mandates. The conditions on the FIFRA label mandated by EPA are legally enforceable under FIFRA, 7 U.S.C. § 136j(a)(2)(G), and become part of the proposed registration under the ESA. *Cf. Center for Biological Diversity v. BLM*, No. 10-72356 at *12722 (9th Cir. Oct. 22, 2012) (conservation measures should have been considered as part of the proposed action because that would have made them enforceable under the ESA); 50 C.F.R. § 402.02. Critically, EFED's screening-level assessments *already* rely upon the label's mandatory conditions as part of the effects determination. Specifically, “[s]creening-level risk assessments rely on labeled statements of the *maximum rate of pesticide application, the maximum number of applications, and shortest interval between applications*. Together, these assumptions constitute a maximum use scenario.” *Id.* at 51 (emphasis supplied). *See, e.g.,* Nikiba Daughtry, Environmental Field Branch, Office of Pesticide Programs, Oxyfluorfen: Analysis of Risks to Endangered and Threatened Salmon and Steelhead, Supporting No Effect Determination for Oxyfluorfen, 1 (April 28, 2004) (“The use of oxyfluorfen will have no direct or indirect effect from loss of food supply or loss of cover in the 26 ESUs of Pacific salmon and steelhead when used according to labeled application directions.”).²⁰ EPA also may take into account *other* mandatory conditions on pesticide labels, such as mandatory buffer zones. This is entirely appropriate given that failure to follow the label requirements is unlawful. Absent reliance on label application rates and frequency, it would be impossible for EPA to assess potential exposure – and thus impossible for EPA to make either a “no effect” or a “may affect” determination.²¹

Courts have held that mitigation measures or other enforceable protections *should* be taken into account when determining the impact of the proposed action on listed species. *See, e.g., Sierra Club v. Van Antwerp*, 661 F.3d 1147 (D.C. Cir. 2011) (finding “no reason why the general principle of taking mitigation into account should not apply to the decision whether the ESA requires formal consultation.”); *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 956 (9th Cir. 2003) (“If a Conservation Agreement is in place, then the reviewing agencies ought to consider it when evaluating the impact of the proposed action [in the ESA context]”); *Sierra*

²⁰ http://www.epa.gov/espp/litstatus/effects/oxyfluorfen/oxyfluorfen_analysis.pdf.

²¹ EPA would either have to make unsupported assumptions about potential exposures – which almost by definition would be arbitrary – or, in the alternative, without any boundaries for analysis, EPA arguably would have to consult with the U.S. Fish & Wildlife Service or the National Marine Fisheries Service regarding every single pesticide and every single endangered species. No court has ever held that this is required.

Club v. Marsh, 816 F.2d 1376, 1379-80 (9th Cir. Cal. 1987) (explaining that agency relied upon mitigation to support conclusion that agency action was not likely to jeopardize the species' continued existence); *Center for Biological Diversity v. BLM*, No. 10-72356 at * 12739 (9th Cir. Oct. 22, 2012). In fact, outside of the ESA context, case law has long supported the notion that agencies may rely upon mitigation measures to contribute to compliance with environmental laws even where mitigation measures are actually carried out by private parties. *See Selkirk Conservation Alliance*, 336 F.3d at 955 (listing a number of such cases).

Action agencies commonly take into account mitigation or other enforceable requirements that are part of the proposed action to support a no effect determination. So does the U.S. Fish and Wildlife Service, which itself recognizes the propriety of relying on mitigation in the no effect context. For example, as the action agency (rather than the consulting agency) the U.S. Fish and Wildlife Service has, in a number of instances, relied upon herbicide label application rates as well as binding agreements between the agency and refuge farmers to support a no effect determination for the use of herbicides in cooperative farming on the National Wildlife Refuge System. *See, e.g.*, U.S. Fish and Wildlife Service, Midwest Region, Environmental Assessment: Use of Row Crop Farming and Genetically-modified, Glyphosate-tolerant Corn and Soybeans on National Wildlife Refuges and Wetland Management Districts, 26-27 (March 2011); U.S. Fish and Wildlife Service, Mountain-Prairie Region, Environmental Assessment: Use of Genetically Modified, Glyphosate-Tolerant Soybeans and Corn on National Wildlife Refuge Lands in the Mountain-Prairie Region (Region 6), 15 (April 2011).

As another example, the U.S. Food and Drug Administration's no effect determination with respect to its approval of genetic modifications to Atlantic salmon relied on numerous containment measures that were part of the proposed action. *See* Appendix D, U.S. Food and Drug Administration, Draft Environmental Assessment: AquAdvantage Salmon (May 2012). The U.S. Food and Drug Administration submitted that no effect determination to the Services to amend its previous "may affect" determination. The U.S. Fish and Wildlife Service deemed the no effect determination "well supported" in light of the containment facilities and NOAA had no objections. *See id.*

C. Dicamba Does Not Pose a Risk to Terrestrial Invertebrates

In addition to the lines of evidence that EPA has used to conclude that M1691 Herbicide does not pose a risk to threatened or endangered terrestrial invertebrates, Monsanto has identified two publications that also support EPA's conclusion of low acute and chronic risk for honey bees (*Apis mellifera* L.) that serve as the surrogate species for terrestrial invertebrates. Scientists at the United States Department of Agriculture, Agricultural Research Service Laboratory in Tucson, Arizona concluded that the survival of adult worker bees was not affected after chronic exposure to dicamba technical active ingredient or to a dicamba salt formulation at dietary concentrations up to 1000 ppm in a sucrose solution (Morton et al., 1972). Scientists from the same lab also concluded that honey bee brood production was not affected when the colony was fed concentrations of a dicamba salt formulation at concentrations up to 1000 ppm a.e. in a sucrose solution (Morton et al., 1972).

Based on predicted dicamba residues in pollen and nectar from the new use of dicamba on dicamba tolerant soy and cotton, exposure to honey bee brood would not be expected to exceed

the levels tested in this study. In addition, dicamba residues decline rapidly with a half-life of less than 9 days on foliage, and plant species sensitive to dicamba to which dicamba is applied will die and no longer be a source of nectar or pollen. For these reasons, the new use of dicamba would have no effect on brood production, survival and development.

Data available in the dicamba registration package demonstrate that dicamba does not pose an acute contact or oral risk to honey bees. These two papers from the published literature demonstrate that dicamba does not pose a chronic risk to either adult honey bees or to brood production at doses up to 1000 ppm dicamba acid equivalent. Dicamba, therefore, does not pose an acute or chronic risk to honey bees. Since honey bees are the surrogate species for other terrestrial invertebrates, dicamba would also not pose an acute or chronic risk to other terrestrial invertebrates.

D. EPA Properly Considered Runoff in Its No Effect Rationale for Listed Species

EPA's screening-level risk assessment for cotton and soybean characterized risk following exposure to dicamba residues in runoff and found that the predicted concentrations from modeling were lower than the most sensitive taxa's endpoint (soybean plant height). EFED concluded that all available lines of evidence supported a "no effects" determination for runoff exposure for off-field listed plants for the proposed labeled use of dicamba DGA. In addition, a "no effect" conclusion from run-off can be extended to animals. The levels of dicamba off-field resulting from runoff and erosion are estimated to be only a small fraction of the application rate; therefore, none of the acute or chronic levels of concern for dicamba would be exceeded. Further, the rainfast mitigation on the label would further protect all listed species in off-field habitats from exposure.

E. Dicamba Acid Seedling Emergence Endpoints Should Not Have Been Considered in the Dicamba DGA Salt Risk Assessment

In the soybean and cotton risk assessments for use of dicamba on dicamba-tolerant soybean (EPA-HQ-OPP-2016-187-0008) and cotton (EPA-HQ-OPP-2016-187-0005), EPA has not only evaluated effects to non-target plants based on endpoints from the non-target plant studies conducted with the proposed M1691 (dicamba DGA salt) end use product, but has also evaluated effects to non-target plants considering endpoints from the dicamba acid seedling emergence study. In these risk assessments EPA has stated:

"For dicamba acid, which DGA salt may dissociate to and which has more sensitive seedling emergence values, RQ values would exceed the LOC of 1.0 for all listed and non-listed monocots and dicots in semi-aquatic areas and for listed monocots and listed and non-listed dicots in dry areas."

However, the dicamba acid study – conducted in 1993 under the previous EPA test guidelines for non-target plant studies – is not relevant to the current risk assessment. A number of differences in methodology between previous and current test guidelines support the use of the most current study which used the dicamba DGA salt, rather than dicamba acid. The table below illustrates some significant differences in test methodology between the two studies:

Table 3. Comparison of non-target plant testing methodology

Subdivision J guideline Dicamba Acid Seedling Emergence Study (Hoberg, 1993)	Current Series 850 Guideline Clarity® (Dicamba DGA salt) Seedling Emergence Study (Porch, 2009)
Silica sand	Natural or artificial soil
OM = 0.11 – 0.17%	Up to 1.5% OC (approx 3% OM)
Growth chamber	Growth chamber, glasshouse, semi-field
¼ strength AAP nutrient solution	Fertility as needed based on controls
200 ml solution “added” to sand	Surface application
Seeds planted 1 cm deep	Seeding depth appropriate for seeds
Onion seedling survival in control = 83%	Control survival of at least 90% needed
30 ml test solution sprayed (1026 gal/A)	Typical application volumes (10-100 gal/A) “not to exceed runoff”
NOEC not determined for all species	1 dose below EC25, 1 dose above EC50, determine NOEC (or calculate EC ₀₅ if necessary)

The dicamba acid seedling emergence study was conducted in a growth chamber, and the test substance for this study was dicamba acid rather than a typical end use product as is currently required. In addition, the study report from the initial study (Hoberg, 1993) documents numerous observations that cast doubt on the validity and interpretation of the test results. For example, the study report notes visual injury symptoms of brown leaf tips, necrosis, and chlorosis. However, these plant responses are different than typical sublethal plant symptoms associated with exposure to dicamba such as leaf curling, epinasty, thickened internodes, and shortened plants (Auch and Arnold, 1978; Weidenhamer et al., 1989).

It is likely that the observed plant responses in the 1993 study were the result of unfavorable test conditions rather than the test material itself. The tip browning and necrosis observed in the studies were likely caused by excess salt accumulation in the leaf tips and leaf margins. The excess salt accumulation, in turn, was likely the result of growing the plants in silica sand, a medium with little or no buffering capacity, coupled with the use of a nutrient solution that was one-quarter strength AAP nutrient solution and applied daily without regard to nutritional requirements for the plants.²² This continued application of nutrient solution likely resulted in the accumulation of excess salt in the leaf tips and leaf margins and in the desiccation and

²² The 1993 study did not follow the most current guidance which requires that nutrient and fertilizer needs should be based on observations of the control plants.

browning of the tissue.²³

Another key test condition was the use of KNO₃ in the media in place of NH₄NO₃. The use of KNO₃ commonly leads to alkalization over time and plant chlorosis due to iron and magnesium deficiencies. The AAP medium was designed for use in hydroponic systems and in algal studies where the solution is replaced at regular intervals rather than allowed to accumulate in a closed container. There are also differences between the guidelines used in the 1993 study as compared to the current guidelines, thus making the current study more relevant for this risk assessment: the previous use of growth chambers to grow plants versus the current use of greenhouses or field-grown plants; the previous planting of seeds from all species at the same depth (1 cm) versus the current guidance to plant seeds at a depth appropriate to the seed size; and the previous germination of seeds first in paper “rag dolls”, followed by transfer to pots, versus the current guidance to allow germination to occur in soil.

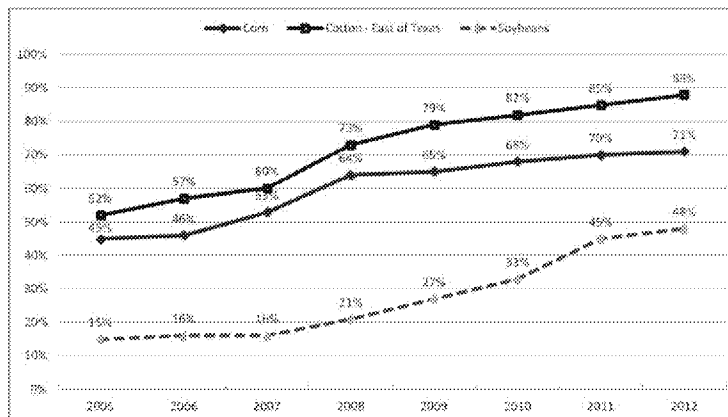
In summary, the dicamba DGA salt seedling emergence study endpoints are the appropriate endpoints to use in the current risk assessments because the dicamba DGA salt seedling emergence study was conducted according to the current EPA seedling emergence test guideline, and the methodology used in the dicamba acid seedling emergence study likely resulted in plant injury due to causes other than dicamba treatment resulting in endpoints that should not be attributed to dicamba. Furthermore, based on EPA’s refined analysis using the DGA salt seedling emergence study no effects were observed.

V. MONSANTO SUPPORTS EPA’S WEED RESISTANCE PLAN, WITH CERTAIN REFINEMENTS

Monsanto greatly values maintaining the durability of our products and agrees that the benefits of tools such as low-volatility formulations of M1691 Herbicide should be preserved for agriculture. Sustainability of this tool is important for American farmers and a business objective for Monsanto. As such, Monsanto supports voluntary stewardship (including as described in PR 2001-5), which enables the marketplace to adjust to emerging challenges around herbicide resistance. For example, over the last 10 years market flexibility has allowed/encouraged farmers to incorporate the use of soil residual herbicides as needed and other complementary post-emergent herbicides to address the emerging weed management challenges posed by glyphosate-resistant weeds. If proposed weed management plans were to become overly prescriptive, the ability of the market to adjust to new or future emerging weed control challenges could be negatively impacted. Voluntary stewardship should therefore be the basis of EPA’s proposed management of herbicide resistance.

²³ The fact that tip browning noted in the 1993 study was reported as occurring on corn, a plant that is not normally sensitive to dicamba effects, is a further demonstration that the effects observed were not dicamba specific effects.

Herbicide programs in U.S. glyphosate tolerant crops have diversified significantly from 2005-2012, as evidenced by the incorporation of non-glyphosate residual herbicides



Source: Monsanto Market Research Studies

With this in mind we provide comments on two areas of the proposed resistance management plans including A) The Herbicide Resistance Management Plan for M1691; B) Maintaining the durability of M1691.

A. Monsanto Suggests Adjustments That Will Help to Reinforce Practices That Assist Growers With Herbicide Resistance Management

Monsanto is generally supportive of an appropriate *Herbicide Resistance Management Plan*. For example, Monsanto supports offering education, consultation, and recommendations for implementing additional weed control measures, when requested. Monsanto also supports reporting weed species resistant to M1691 Herbicide under appropriate circumstances.

However, Monsanto is opposed to restrictions that go beyond these principles, as discussed below.

- Herbicide categorization.** Monsanto opposes the categorization scheme proposed by EPA entitled “Herbicide Resistance Categories of Concern and Resistance Management Elements for Use by Risk Managers.” In particular, the implication that because an herbicide is used on a herbicide tolerant plant produced through biotechnology (genetically engineered {GE}) or other breeding methods that the herbicide is automatically categorized as “site of high concern for resistance.” This implies that adoption of biotechnology has caused a rapid onset of resistance in weeds. There is nothing inherently different about GE crops such that the EPA should regulate for herbicide resistance any differently than it should do for herbicides in other crops.

Additionally, separating herbicides into different groups will cause confusion about herbicide resistance management and confusion about why and how an herbicide is included in a particular category. Herbicide resistance in weeds is an herbicide and herbicide-use issue. It is not associated with how the crop was bred or developed or if the crop is tolerant, resistant or susceptible to an herbicide. Monsanto urges EPA to eliminate

the categorization and rather review as appropriate each herbicide against the 11 elements outlined in Table A. This will reinforce practices to help with herbicide resistance management, will be equitable across manufacturers, and will avoid confusion about the categorization.

- ***Specific elements of the Herbicide Resistance Management Plan Checklist.*** EPA proposes to mandate *all* of the elements in Table A in the final resistance management plan. While Monsanto will endeavor to address each element, it is important to consider that some do not apply to this product. For example, Element 10 is an element specific to combination products with multiple Mechanisms of Action. Element 11 is not applicable, as no additional specific requirements for resistance management were identified that were not already stated in the registration.
 - ***Element 7.*** We oppose the implementation of Element 7: “List confirmed resistant species in separate table and list effective or recommended rates for these weeds with the table.” While Monsanto supports making information about weeds resistant to the Monsanto Dicamba Products available to stakeholders and farmers, there are a number of communication challenges. For example, if this information were to be listed on product labels, the label could be out of date as soon as a new resistant species were identified. In many cases labels are not updated for a period of time permitted by EPA. As such, product users may not gain complete awareness to the full list of weeds to have developed resistance in the interim from the product label itself. If EPA suggests a separate website listing, it is unclear if this website then becomes a legal extension of the label. Furthermore, since the occurrence of confirmed resistant weeds are reported to EPA under 6(a)(2) reporting by various registrants, it is unclear how different dicamba registrants would provide consistent information about resistant weeds to growers and stakeholders.
 - ***Element 9.*** Monsanto is also concerned about the implementation of Element 9: “Provide growers with: Resistance Management Plan, Remedial Action Plan, Educational materials on resistance management.” Monsanto is willing to make such information available to farmers to develop and implement appropriate resistance management plans. Furthermore, farmer decisions on purchasing herbicides for their intended use is based on a variety of weed management decisions and practices. Generalized considerations for weed management and management of herbicide-resistant weeds are encompassed by best management practices and are appropriately provided to farmers through university extension, company informational, and other educational materials. However, each farmer must make these decisions based on their crop, the weeds present, equipment, economics, other herbicide choices, and many other farm or field specific needs/requirements. Therefore providing information pertinent to a resistance management plan is an appropriate approach to this element.

In summary, Monsanto is supportive of an appropriate herbicide resistance management plan. Herbicide-resistant management plans that enable and support farmer best management practices, maintain a farmers’ ability to adjust practices to address the challenges of weed

management including the management of herbicide-resistant weeds, and allow the use of new tools for weed management, are critical to maintaining our agricultural productivity.

B. Monsanto Product Recommendations Will Maintain the Durability of M1691 Herbicide

Maintaining the durability of M1691 Herbicide was carefully considered as the herbicide resistance management plan was developed. Although Monsanto believes that the risk of resistance to M1691 Herbicide in many weed species is inherently low due to the high probability that the herbicide would be used as part of a diversified weed management program including multiple the use of other herbicides and a low frequency of resistant alleles present in weed species/populations, product and weed control program recommendations will strongly reinforce and support best management practices for diversified weed management to reduce selection for – and manage existing populations of – weeds resistant to this herbicide.

Dicamba, the active ingredient in M1691 Herbicide, has been used for more than 50 years in agriculture with only two known resistant species in the United States, and a total of five resistant species worldwide. Furthermore, auxin-based classes of herbicides are known for having low rates of resistance. Possible reasons for low level of resistance are: resistant alleles occur infrequently; the manifestation of resistance is likely multi-genic; and resistance genes are associated with a fitness penalty (Mithlia et. al. 2011).

Notably, M1691 Herbicide will be used in systems that include the use of other herbicides. Since M1691 Herbicide is primarily used to control broadleaf weeds, other herbicides will be needed in the overall system to control other species, including grasses. Recommendations will include the use of soil-applied residual and foliar applied post-emergent herbicides, as appropriate to provide multiple effective mechanisms of action on target weed species. Dicamba tolerance is stacked with glyphosate tolerance in the soybean and with glyphosate and glufosinate tolerance in the cotton product thus enabling, where appropriate, the use of these herbicides to manage weeds. Furthermore, M1691 Herbicide will be part of the Roundup Ready plus program. This program currently includes education, recommendation, and incentive components that have contributed to the diversification of weed management programs including increased in the use of soil applied residual herbicides and herbicides with different mechanisms of action to control weeds – both considered Best Management Practices for weed management and to manage and/or delay the selection of herbicide-resistant weeds. The product label will also require a minimum single application use rate of 0.5 lb a.e. to further reduce potential selection for resistant weeds.

VI. ENABLING TANK MIXES IS CRITICAL FOR EFFECTIVE WEED RESISTANCE MANAGEMENT AND ENVIRONMENTAL STEWARDSHIP

A. Tank Mixing Provides Multiple Benefits to Growers

The benefits of herbicide tank mixtures can be grouped into three general categories: weed resistance management, economics and sustainability, and efficacy and productivity.

Weed Resistance Management

The use of herbicide tank mixes facilitates one of the most practical, convenient and reliable methods to ensure use of multiple herbicide sites of action in weed control programs, which is a fundamental component of weed resistance management best practices (Beckie 2006, Dill et al. 2008, Gustafson 2008, Green and Owen 2011, Norsworthy et al. 2012). Recent research indicates that herbicide tank mixtures are more effective at delaying the development of herbicide resistance or managing herbicide resistant populations than herbicide rotation (Diggle et al., 2003, Beckie 2006, Beckie and Reboud 2009, Evans et al 2015).

Tank mixtures also facilitate use of herbicide combinations to provide both foliar and residual activity to control emerged weeds and subsequent flushes of newly germinating weeds in a single application (Spaunhorst 2012). The use of tank mixtures with herbicides that provide residual control can minimize weed species shifts and resistance selection pressure (Dill et al. 2008, Gustafson 2008) and can extend the effective window of application for subsequent herbicide applications to be made at proper weed growth stage timings (VanGessel et al. 2000).

Herbicide tank mixtures are a key enabler for the use of multiple sites of action and effective and sustainable weed management systems.

Economics and Sustainability

Tank mixing herbicides provides convenience, efficiency and economic benefits for growers and applicators. “The use of mixtures decreases the number of trips across the field, saves fuel, decreases labor, reduces equipment wear and lessens the mechanical damage to the crop and soil. These economical aspects are increasingly important in the U.S. where the trend is toward larger farms, fewer workers, and higher application costs” (Green and Bailey 1987).

Tank mixing herbicides that would otherwise be applied in sequential applications also facilitates time management across farm operations with multiple fields and crops that require management practices within the same windows of time. This enables growers to manage more acres more efficiently with existing equipment and resources.

Environmental benefits can also be realized with fewer applications across the field. As an example, each application trip eliminated across a single 100-acre field would conserve between 1,000 – 2,000 gallons of water carrier and 2.5-20 gallons of a single adjuvant at 10 - 20 gallon per acre spray volumes and typical adjuvant use rates of 0.25 to 1.0% v/v concentration. Less fuel use through fewer applications trips also corresponds to reduced CO₂ emissions.

Efficacy and Productivity

Tank mixing herbicides enables the farmer to choose the best combination and ratios of herbicide components for his individual, unique weed control needs and conditions. Herbicide mixtures improve control and provide a broader weed control spectrum including control of herbicide-resistant weeds (Beckie 2006, Green and Owen 2011, Barnett 2013).

Proper timing of post-emergence weed control applications based on weed height is critical to optimize weed control and minimize yield losses (Gower et al., 2002, Gower et al. 2003, Dalley et al. 2004). Herbicide programs that contain tank mix combinations and are applied to smaller plants earlier in the season provide generally greater soybean yield than sequential application programs (Vink et al. 2012, Riley and Bradley 2014).

Sequential application of multiple herbicide program components requires an interim period of time between applications. The planned time period can often be extended or the sequential application missed altogether due to weather, time constraints or other unplanned issues. Uncontrolled weeds can rapidly grow beyond the planned target growth stage reducing yield potential (Carey and Kells 1995). “Palmer amaranth plants can grow 2-3 inches *per day* under good growing conditions. The effectiveness of most foliar-applied herbicides dramatically decreases when Palmer amaranth plants are taller than 4 inches.” (Hager 2014).

Compared to sequential applications, tank mixing allows for more consistently optimal application timings for multiple program components and reduces potential for mistimed or missed applications, inadequate weed control and yield loss.

B. EPA Should Consider Specific Tank Mixes Where Requested

Monsanto intends to submit additional data to demonstrate that tank mixing the Monsanto Dicamba Products with other Active Ingredients would be consistent with EPA’s risk assessment. The practice of tank-mixing herbicides is an important tool used in agriculture that gives growers flexibility in a comprehensive weed resistance management program to include multiple modes of action while expanding the spectrum of weed control. Specifically, in the proposed registration of M1691 Herbicide for uses on Dicamba-Tolerant Cotton and Soybean, EPA has expressed concern about potential “synergistic” effects from tank mixing dicamba with other active ingredients. With regard to EPA’s concern about “synergistic effects” Monsanto has evaluated various sources of information for reliability and relevance to an endangered species and non-target organism assessment. This evaluation resulted in the following conclusions:

- True synergistic interactions between chemicals are rare and are generally not predicted to occur under low exposure scenarios (Verbruggen and van den Brink 2010, Cedergreen, 2014).
- For synergistic interactions to occur among herbicides, or other pesticides, in the environment, interacting substances have to co-occur at high enough levels to exceed the toxic threshold for each product (Cedergreen, 2014, COT, 2002; Kortenkamp and Altenburger; 2011). The NAS panel report (NRC 2013, p. 134) is consistent on this point by also stating, “...*components do not need to be considered when present at concentrations below their toxic thresholds.*” Effects should only be assessed with biologically relevant endpoints (i.e., growth and survival for non-target plants (NTPs)).

The buffer distance of 110 feet for M1691 Herbicide particle drift is being implemented to keep exposure levels below the threshold effect level (NOAER) for non-target plants – and therefore would also protect against potential synergistic effects.

- When evaluating tank mixtures it's important that the conclusions of the data are limited to application rates relevant to the threatened and endangered species analysis. Conclusions of synergy at field rates, often the focus of literature and patent data, are of little use and not appropriate in identifying and quantifying synergy at low, environmentally relevant concentrations outside of the spray application area.
- An acceptable statistical test must be used to distinguish whether the response produced by a dose combination is larger than that predicted by the “no-interaction” hypothesis.

In sum, we believe that EPA should be willing to consider specific tank mixtures where requested.

VII. EPA’S ANALYSIS IS TECHNICALLY AND SCIENTIFICALLY SOUND

A. EPA’s Human Health Risk Assessment Is Highly Conservative and Amply Demonstrates a Reasonable Certainty of No Harm

EPA’s Human Health Risk Assessment (HHRA) demonstrates that there is a reasonable certainty of no harm to the general public, including infants and children, from the proposed new uses of dicamba on dicamba-tolerant soybean and cotton.²⁴ However, EPA’s decision to establish a chronic reference dose (cRfD) for dicamba of 0.04 mg/kg/day based on a Point of Departure (POD) of 4 mg/kg/day determined from the 2-generation rat reproduction study with the DCSA metabolite is extremely conservative and appears to lead to inconsistencies both within the HHRA and between the HHRA and Environmental Fate and Ecological Risk Assessment documents. This decision is also inconsistent with (i.e., more conservative than) the conclusions of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR).

Section 5.1.4 of the HHRA states, “Based on available toxicity studies and structural similarities, HED considers the parent and all three metabolites [DCSA, DCGA and 5-OH dicamba] to be of comparable toxicity.” This is similar to the JMPR (2010) conclusion that “DCSA and DCGA have toxicity similar to or lower than that of dicamba” while 5-OH dicamba “appears to be of lower toxicity than the parent.” In contrast, Section 4.3 of the HHRA indicates that DCSA is approximately 12-fold more toxic to offspring than dicamba acid. The latter statement is apparently based on the most recent EPA conclusions regarding the multi-generation rat reproduction studies with both compounds that were conducted at different times in different laboratories. Although full details are not available, this conclusion appears to be based, at least in part, on different Agency approaches used in evaluating or re-evaluating pup weights. Slight decreases in pup weight or pup weight gain relative to concurrent control were apparently reported in only one generation of both studies at 500 ppm. For DCSA, F1 pup weights at 500 ppm were lower than the concurrent control but were similar to those observed in the F2 controls as well as the laboratory’s historical control values and were thus not considered to be a treatment related adverse effect. Although JMPR agreed with this conclusion, EPA apparently did not and instead concluded that 500 ppm was a Lowest Observed Adverse Effect Level

²⁴ M1768 and M1769 herbicides would also be covered under the current HHRA for dicamba.

(LOAEL). This resulted in a No Observable Adverse Effect Level (NOAEL) of 50 ppm, the next lowest concentration tested. In contrast, for dicamba, EPA apparently recently concluded that the decreased pup weights reported in one generation at both 500 and 1500 ppm were not treatment related due to the values being comparable to historical control data. EPA thus raised the dicamba offspring NOAEL from 500 ppm to 1500 ppm. It is not clear why comparisons to historical control data were acceptable for dicamba but not for DCSA. However, the end result is that although both the DCSA and dicamba studies appear to have similar marginal responses at 500 ppm, EPA conclusions regarding offspring NOAELs for these molecules are now quite different, 50 ppm and 1500 ppm, respectively. This does not appear to be consistent with the EPA conclusion that the two molecules exhibit comparable toxicity.

The EPA decision to reduce the chronic reference dose (cRfD) for dicamba from 0.45 to 0.04 mg/kg/day and to use this value for dietary risk assessment also does not appear to be justified. DCSA is only a very minor metabolite in conventional crops. Accordingly, the primary source for DCSA in the diet from the proposed uses will be from use of dicamba on dicamba-tolerant soybean (cotton consumption is negligible). However, based on the EPA analysis, potential residues in soybean represent only a very small percentage of the total dietary intake of dicamba. As a result, the vast majority of dietary exposure will be to parent dicamba, not DCSA. Therefore, it would seem more appropriate to assess the risks from these residues utilizing a cRfD based on dicamba data rather than an 11-fold lower cRfD based on a marginal response seen in a DCSA study.

The cRfD of 0.04 mg/kg/day proposed by EPA for use in dietary risk assessment is much lower than the value recommended by JMPR. JMPR concluded that the NOAEL for both the dicamba and DCSA rat reproduction studies was 500 ppm (~35 mg/kg/day for dicamba and ~37 mg/kg/day for DCSA). JMPR then concluded that an Acceptable Daily Intake (ADI) of 0.3 mg/kg/day was appropriate to characterize potential risks to both dicamba and its metabolites. This value was based on the NOAELs from the rabbit teratology and rat reproduction studies with dicamba and a 100-fold uncertainty factor.

Finally, the use of a Point of Departure (POD) of 4 mg/kg/day from the DCSA rat reproduction study for determining the cRfD for dicamba seems inconsistent with information included in the Second Addendum to the Environmental Fate and Ecological Risk Assessment (March 24, 2016). According to that document, EPA has conducted a benchmark dose analysis of the DCSA reproduction study and concluded that the threshold value for the NOAEL would be 8 mg/kg/day and that the lower 95% confidence limit on the benchmark dose resulting in a 5% change from background (BMDL₅) would be 34.9 mg/kg/day. It is not clear why these analyses were not summarized and utilized in the selection of the POD and cRfD in the HHRA.

B. EPA's Occupational Risk Assessment Demonstrates Ample Protection From Occupational Exposure

EPA's occupational risk assessment of dicamba DGA salt demonstrates that the proposed label restrictions are adequately protective of human health. For occupational mixer, loader and applicator assessments, EPA's selection of relevant exposure scenarios, baseline personal protective equipment (i.e., long-sleeved shirt, long pants, shoes and socks, but no respiratory protection), an application rate consistent with the proposed label, best available unit exposure

data, ExpoSAC Policy 9.1-consistent assumptions regarding number of acres treated per day, relevant exposure durations, toxicological endpoint and level of concern result in calculations of sufficient margins of exposure. For the occupational post-application exposure assessment, potential inhalation exposure to individuals performing post-application activities in previously treated fields would be expected to be less than inhalation exposure related to occupational activities involving mixing, loading and applying. Therefore, EPA's occupational risk assessment of dicamba DGA salt is adequately protective of health.²⁵

C. The Proposed Label Is Protective of Non-Target Susceptible Plants

The Proposed Dicamba Label sufficiently protects sensitive crops from the offsite movement of the Monsanto Dicamba Products. As demonstrated in sections III.B-C, a downwind buffer of 110 feet is more than sufficiently protective of non-target organisms, which include sensitive crops. First, volatility data provided by Monsanto on April 12, 2016, demonstrate that volatility is not a major component of offsite movement; additional evidence demonstrates that there should be no concern of off-site movement due to volatility, and that a downwind buffer of 110 feet is more than adequate to protect non-target organisms from potential adverse effects when the mandatory application requirements described in the draft M1691 Herbicide label are instituted. Second, Monsanto previously submitted multiple lines of evidence to support that a downwind buffer of 110 feet will be protective of potential adverse effects to non-target organisms (MRID 49292801, MRID 49424601). However, as an additional layer of protection for sensitive crops, the Proposed Label for M1691 Herbicide specifies the following application restrictions: "Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption. Avoid contact of herbicide with foliage, green stems, exposed non-woody roots of crops, and desirable plants, including beans, cotton, flowers, fruit trees, grapes, ornamentals, peas, potato, soybean, sunflower, tobacco, tomato, and other broadleaf plants, because severe injury or destruction may result, including plants in a greenhouse. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. Applicators are required to ensure that they are aware of the proximity to sensitive areas, and to avoid potential adverse effects from off-target movement of M1691 Herbicide. The applicator must survey the application site for neighboring sensitive areas prior to application. The applicator also should consult sensitive crop registries for locating sensitive areas where available.

Failure to follow the requirements in this label could result in severe injury or destruction to desirable sensitive broadleaf crops and trees when contacting their roots, stems or foliage.

Specifically, commercially grown tomatoes and other fruiting vegetables (EPA crop group 8), cucurbits (EPA crop group 9), and grapes are sensitive to dicamba. In order to prevent unintended damage from any drift of this product, do not apply this product when the wind is

²⁵ EPA's current occupational exposure assessment for use of M1691 Herbicide on dicamba-tolerant cotton and soy would also cover occupational exposure assessments for similar use patterns of other dicamba DGA salt formulations containing VaporGrip™ technology, M1768 Herbicide (EPA Reg. No. 524-617) and M1769 Herbicide (EPA Reg. No. 524-616).

blowing toward adjacent commercially grown sensitive crops.”

Extensive data further illustrates that use of the Monsanto Dicamba Products will not have a negative impact on yield of other crops since other crops may be exposed to higher rates of dicamba than soybean without having a negative impact on growth or yield (MRID 48892302).

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IX. APPENDIX: TECHNICAL CORRECTIONS

<u>Docket ID No.</u>	<u>Document Name & Section</u>	<u>Text</u>	<u>Page</u>	<u>Comment/Data Needed</u>
EPA-HQ-OPP-2016-0187-0002	Addendum to Dicamba Diglycolamine Salt (DGA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states (Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri,	“EPA has a specific process based on sound science that it follows when assessing risks to listed species for pesticides like dicamba that will be used on seeds that have been genetically modified to be tolerant to the pesticide.”	2	<p>Replace: “seeds” with “crops.”</p> <p>Dicamba is not a seed treatment. It will not be used on seeds that have been genetically modified to be tolerant to the pesticide. It will be used either by (1) application to soil either, pre-plant or pre-emergence of the dicamba tolerant crop, or (2) by foliar application over the dicamba tolerant crop.</p>

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	Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin).			
EPA-HQ-OPP-2016-0187-0002	Addendum to Dicamba Diglycolamine Salt (DGA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states (Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio,	“Similar modeling of DCSA residues, which are formed inside the tolerant-soybean and tolerant-cotton plants through plant metabolism, is not feasible at this time due to a lack of sufficient data tracking DCSA residues in plant tissues over time to ascertain degradation rates.”	7	Analysis needed: Data are available and decline of DCSA residues should be considered in the risk assessment. Decline of DCSA residues has been reported for three sites in MRID 48644205: Determination of Dicamba Residue Decline in Forage after Application to Dicamba-Tolerant Soybean MON 87708 × MON 89788. Although a half-life has not been calculated, residues appear to have declined by approximately 50% or more within 7 days after application.

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	Oklahoma, South Dakota, Tennessee, and Wisconsin)			
EPA-HQ-OPP-2016-0187-0002	Addendum to Dicamba Diglycolamine Salt (DGA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states (Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee,	“Mass of soybean plants consumed per day = 22.44 kcal/day/(0.63 kcal/gX0.47 AE) = 75.79 g/day.”	Pg 15	Replace: Energy requirements for soybean plants should be 2.2 kcal/g (broadleaf forage).

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	and Wisconsin)			
EPA-HQ-OPP-2016-0187-0002	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 16 states (Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin)	“The screening level risk assessment found that DCSA residues in arthropods in cotton fields (based on the empirical residues in broadleaf plant tissues and extrapolated via the Kenaga nomogram to residues in arthropods) would not exceed any chronic levels of concern for mammals. The analysis of the Louisiana Black Bear’s recovery plan described above indicates that in soybean fields, the attractive food source in these fields would be soybean grain (seeds). On the basis of this information, the refinement of the soybean screening level assessment was initiated to reflect the	24	Add: “Using arthropods as a food source would not alter the conclusion of the screening level assessment for the Louisiana Black Bear.”

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		conservative assumption of exclusive consumption of exposed soybean grain containing the maximum measured DCSA residues.”		
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States (Alabama, Georgia, Kentucky, Michigan, North Carolina, South	Similar modeling of DCSA residues, which are formed inside the tolerant-soybean and tolerant-cotton plants through plant metabolism, is not feasible at this time due to a lack of sufficient data tracking DCSA residues in plant tissues over time to ascertain degradation rates.	8	Analysis needed: Data are available and decline of DCSA residues should be considered in the risk assessment. Decline of DCSA residues has been reported for three sites in MRID 48644205: Determination of Dicamba Residue Decline in Forage after Application to Dicamba-Tolerant Soybean MON 87708 × MON 89788. Although a half-life has not been calculated, residues appear to have declined by approximately 50% or more within 7 days after application.

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	Carolina, and Texas)			
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States; Appendix 2: Listed Species Rationale for NO Effects When Action Area is Limited to Treated Agricultural Field – Accounting for Spray Drift Mitigation Labeling	Rationale: “The proposed dicamba DGA uses are not expected to overlap with rivers or other water bodies.”	77	Add: Rationale should include “streams and creeks.”

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	Restrictions; Lacy elimia			
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States; Appendix 2: Listed Species Rationale for NO Effects When Action Area is Limited to Treated Agricultural Field – Accounting for Spray Drift Mitigation	Rationale for fleshy-fruit gladeccress: “Technical consultation with USFWS biologist indicated that this species <i>will not persist</i> in soy or cotton fields due to the competing vegetation.”	109	Add: “The U.S. Fish & Wildlife Service concurs that fleshy-fruit gladeccress will not occur in row crop agricultural fields.”

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	Labeling Restrictions			
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States; Appendix 2: Listed Species Rationale for NO Effects When Action Area is Limited to Treated Agricultural Field – Accounting for Spray Drift Mitigation	“The proposed dicamba DGA uses are not expected to overlap with plains.”	119	Replace “plains” with “South Texas Plains vegetation area.”

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	Labeling Restrictions; Ashy dogweed			
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States; Appendix 2: Listed Species Rationale for NO Effects When Action Area is Limited to Treated Agricultural Field – Accounting for Spray Drift	Hairy rattleweed rationale: “The proposed dicamba DGA uses are not expected to overlap with the margins of cultivated land.”	125	Add: “An in-field buffer will be protective of species at the field margins.”

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	Mitigation Labeling Restrictions			
EPA-HQ-OPP-2016-0187-0003	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States; Appendix 2: Listed Species Rationale for NO Effects When Action Area is Limited to Treated Agricultural Field – Accounting for Spray Drift	<p>Sensitive joint-vetch habitat:</p> <p>“Majority are found in natural tidal marsh habitats, but also a few documented cases of a pocket marsh wetland, edge of a moist soybean field, and a mowed grassy strip between a manmade drainage channel and dirt road.”</p>	136-37	Add: “An in-field buffer will be protective of species at the field margins.”

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	Mitigation Labeling Restrictions			
EPA-HQ-OPP-2016-0187-0004	Addendum to Dicamba Diglycolamine Salt (DOA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 11 U.S. States: (Arizona, Colorado, Delaware, Florida, Maryland, New Mexico, New Jersey, New York, Pennsylvania, Virginia and West	“Similar modeling of DCSA residues, which are formed inside the tolerant-soybean and tolerant-cotton plants through plant metabolism, is not feasible at this time due to a lack of sufficient data tracking DCSA residues in plant tissues over time to ascertain degradation rates.”	8	Analysis needed: Data are available and decline of DCSA residues should be considered in the risk assessment. Decline of DCSA residues has been reported for three sites in MRID 48644205: Determination of Dicamba Residue Decline in Forage after Application to Dicamba-Tolerant Soybean MON 87708 × MON 89788. Although a half-life has not been calculated, residues appear to have declined by approximately 50% or more within 7 days after application.

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	Virginia).			
EPA-HQ-OPP-2016-0187-0004	Addendum to Dicamba Diglycolamine Salt (DOA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 11 U.S. States: (Arizona, Colorado, Delaware, Florida, Maryland, New Mexico, New Jersey, New York, Pennsylvania, Virginia and West Virginia).	Audubon's Crested Caracara	12	Add: "There is currently no commercial cotton production in the southern part of Florida. Cultivation of <i>B.t.</i> -cotton is not permitted south of Florida State Highway 60 due to potential cross-pollination with a wild relative, <i>G. hirsutum</i> . DT-cotton will therefore not be grown in Palm Beach County since it will only be available commercially as a stacked product that also possesses a <i>B.t.</i> trait and Palm Beach County is south of Highway 60. Since no DT cotton will be grown in proximity to the Audubon Crested Caracara (and thus no dicamba applied to DT cotton there), a no-effect determination is amply supported. Bt Plant-Incorporated Protectants October 15, 2001 Biopesticides Registration Action Document. http://www.epa.gov/oppbppd1/biopesticides/pips/bt_brad2/3-ecological.pdf ."

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EPA-HQ-OPP-2016-0187-0004	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 11 U.S. States; Birds; California Condor; DCSA Assessment for California condor consuming prey that had previously consumed soybean forage	<p>The first step in the refinement process is to calculate DCSA residues in the prey species. Using the assumption that the prey species is represented by a 1000 g mammal and the conservative assumptions that the prey animal feeds exclusively on exposed soybean forage containing the maximum measured residues of 61.1 ppm, EFED calculated the residues based on the following allometric equations (USEPA, 1993):</p> <p>1000 g mammal prey ingestion rate (dry) = $0.621(1000)^{0.564}$ = 30.56 g /day</p> <p>1000 g mammal prey ingestion rate (wet) = $30.56/0.2 = 152.8$</p>	12	Add: "A Chronic Dose-Based RQ of 0.02 does not exceed the LOC of 0.1. Consequently, a 'no effect' determination is appropriate for the California condor."

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		<p>g/day</p> <p>DCSA residue in prey eating soybean forage/hay 61.1 mg DCSA/kg-food (ww) x 0.1528 kg food/kg-bw = 9.34 mg/kg-bw/day</p> <p>The next step is to calculate the expected daily dose for a typical 10 kg (10000 g, Dunning 1984) condor, the adjusted LD50 value, and the acute dose-based RQ for the condor based on the following allometric equations:</p> <p>Food Intake (wet) = $(0.301(10000)^{0.75}) / (1 - 0.69) / 1000 = 0.97 \text{ kg wet/day}$</p> <p>Dose-based EEC in condor eating large mammal = 9.34 mg/kg wet x $0.97 / (10000 / 1000) =$</p>		

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		<p>0.91 mg/kg-bw/day</p> <p>Avian Chronic Endpoint of 695 mg/kg-diet (from mallard duck study for parent dicamba) modified by ratio of parent dicamba to metabolite DCSA from chronic rat studies (17x) results in Avian chronic NOAEC of 40.88 mg/kg-diet.</p> <p>Chronic Dose-Based RQ = $0.91/40.88 = 0.02$</p>		
EPA-HQ-OPP-2016-0187-0004	Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered	"This analysis suggests that if a pronghorn NE for Sonoran pronghorn is feeding in a soybean field there is a potential for a lethal event. Establishing a potential for overlap between species range and the cropped areas	21-24	Add: "A no effect determination is supported by limited exposure in cotton fields, no exposure in soy fields, and screening-level risk assessment results that identify no risk to mammalian species for exposure in cotton fields."

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	Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 11 U.S. States; Mammals; Sonoran pronghorn; DCSA assessment	proposed for treatment is an important consideration in how likely an exposure event might be for individual pronghorn....”		
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 87701)	“Based on the proposed maximum application rates and exceedances of the Agency’s Levels of Concern (LOCs), at the screening level there is a potential for direct adverse effects to Federally endangered and threatened (referred to hereafter as “listed”) and non-listed birds (acute exposure only), listed vascular aquatic plants, and listed and non-listed terrestrial dicots from the	2	Replace “vascular plants” with “non-vascular plants.”

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		proposed new use.”		
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	“Therefore an analysis of drift from particles volatilized from the treated field was completed...”	7	Replace “drift from particles volatilized” with “volatilization”. The use of the wording “particles” is not accurate for volatilization” occurring after deposition on soil or plants. The only time that volatilization of particles could occur from drift would be during application.
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	BAPMA salt endpoints are indicated to have been used for risk assessment for Fathead minnow acute (LC50) endpoint, Daphnia chronic (NOAEC) endpoint, green algae acute and chronic endpoints. Mysid shrimp chronic value used dicamba acid.	13 Table 7	Comment for consideration: DGA salt endpoints should be used in the assessment.
EPA-HQ-	Ecological Risk Assessment for	Avian chronic values used is indicated as	13 Table 7	Replace: Avian chronic values for the mallard duck of 800 mg a.e./kg diet with 695 mg a.e./kg diet for mallard duck that was

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OPP-2016-0187-0005	Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	mallard duck value of 800 mg a.e./kg diet used.		actually used.
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	<p>“LOC for any size class of mammal or bird (RQs would range from <0.01—0.34; Table 10).</p> <p>Residues in arthropods (as a dietary item for birds and mammals consuming insects that have consumed cotton tissues with DCSA residues) were assumed to follow the Kenaga nomogram relationship between broadleaf plants and arthropods and therefore were considered to contain 4.4 ppm which also</p>	Pg 16	Comment for consideration: DCSA arthropod data is based on Kenaga values, which are extremely conservative considering that those values are based on direct sprays, not through ingestion.

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		would not result in any exceedances (RQ's range from 0.11—0.24)".		
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	"Pesticides were applied using XR-T-Jet 11004 nozzle which is the same nozzle proposed for the new dicamba uses on DT cotton."	31	Replace "XR-T-Jet 11004" with "TTI-11004."
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	"Using these assumptions in TerrPlant (total 2 lb ae/A application and a 0.055% runoff fraction), and the most sensitive endpoint of 0.000261 for the NOAEC for soybeans, the maximum RQ is less than the LOC of 1.0 by	34	Replace: "the most sensitive endpoint of 0.000261" with "the most sensitive endpoint of 0.0673 lb a.e./A." Runoff exposure estimates should be compared to the seedling-emergence endpoint not vegetative-vigor endpoint.

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		a factor of at least 2 (RQs range from <0.1 to 0.48, see Appendix 4)."		
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	Table 14 Row for Mammals: "Yes (Chronic)" and "Yes ² "	35	Replace "Yes (Chronic)" and "Yes ² " with "No" and "No."
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	"Prior to development of glyphosate-resistant crops, there were no known cases of evolved glyphosate resistant weeds (Dyer, 1994)."	36	This sentence should be deleted. There were known cases of Glyphosate-resistant weeds in other locations prior to the introduction of glyphosate-tolerant crops (http://www.weedscience.org).
EPA-HQ-	Ecological Risk Assessment for		44	Add table notes for Appendix 2. LAFT and HAFT should be defined as Lowest Average Field Trial and Highest Average

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OPP-2016-0187-0005	Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)			Field Trial, respectively.
EPA-HQ-OPP-2016-0187-0005	Ecological Risk Assessment for Dicamba DGA Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA), for the Proposed Post-Emergence New Use on Dicamba-Tolerant Cotton (MON 8770 1)	Appendix 4	47-50	Analysis needed: Considering the in-field buffer, spray drift should not be considered in TerrPlant calculations.
EPA-HQ-OPP-2016-0187-007	Memorandum: Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA	“EFED concluded that the label should be modified to include language to maintain a 100 to 110 foot downwind buffer when applying at the 0.5 lbs a.e./A	6	Replace “restricting the droplet spectra extra-coarse and ultra-coarse” with “...restricting the nozzles to those that do not have greater drift potential than TTII 1004 at 63 psi for M1691.”

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	salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean	application rate and with the described nozzles restricting the droplet spectra extra-coarse and ultra-coarse.”		
EPA-HQ-OPP-2016-0187-0007	Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean	“Appendix 2 and MRID 47899524”	14	Replace “MRID 47899524” with “MRID 48219901.” MRID 48219901 is an amended version of the MRID 47899524, and contains corrected residue values that are slightly different from the values in the original report.
EPA-HQ-OPP-2016-0187-0007	Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its	“The empirical data from MRID 47899524 found means and maximums, respectively, of DCSA concentrations of 17.0 and 51.3 ppm, in forage 7-10 days	14	Analysis needed: Mean and Maximum DCSA residue values do not match those of MRID 48219901. Forage Mean / Max 15.8 ppm / 47.9 ppm; Hay Mean / Max 30.1 ppm/ 57.1 ppm; Seed Mean / Max 0.055 ppm/ 0.411 ppm.

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	Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean	following the last application, 32.2 and 61.1 ppm in hay 13-15 days following the last application and 0.059 and 0.440 ppm in seeds 73-98 days after the last application.”		
EPA-HQ-OPP-2016-0187-0007	Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean	“Using these assumptions in TerrPlant (total 2 lb ae/A application and a 0.055% runoff fraction), and the most sensitive endpoint of 0.000261 for the NOAEC for soybeans, the maximum RQ is less than the LOC of 1.0 by a factor of at least 2 (RQs range from <0.1 to 0.48, see Appendix 3).”	21	Replace “the most sensitive endpoint of 0.000261” with “the most sensitive endpoint of 0.0673 lb a.e./A.” Runoff exposure estimates should be compared to the seedling-emergence endpoint not vegetative-vigor endpoint.
EPA-HQ-OPP-2016-0187-	Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment	Herbicide interactions Section	22	Analysis needed: Synergy should include discussion of rates considered. Only rates that would be expected off field are appropriate (i.e., not field rates).

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0007	for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean			
EPA-HQ-OPP-2016-0187-0007	Dicamba DGA: Second Addendum to the Environmental Fate and Ecological Risk Assessment for Dicamba DGA salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) for the Section 3 New Use on Dicamba-Tolerant Soybean	Appendix 3	31-33	Analysis needed: Considering the in-field buffer, spray drift should not be considered in TerrPlant calculations.
EPA-HQ-OPP-2016-0187-0009	Memorandum. Dicamba and Dicamba BAPMA Salt: Human-Health Risk Assessment for Proposed Section 3	“..most highly exposed population subgroup is children ages 1-2...42% of the cPAD.”	5, 37	Analysis needed: The text, while consistent with the select data presented in the summary table in 5.4.6, appears to be inconsistent with the DEEM-FCID results presented in EPA-HQ-OPP-2016-0187-0011 Dietary Exposure Assessment, Attachment 6, which show population subgroup non-nursing infants at 45.4% of the cPAD.

<u>Docket ID No.</u>	<u>Document Name & Section</u>	<u>Text</u>	<u>Page</u>	<u>Comment/Data Needed</u>
	New Uses on Dicamba-tolerant Cotton and Soybean Executive Summary and 5.4.4 Chronic Dietary Risk Assessment			
EPA-HQ-OPP-2016-0187-0011	Memorandum. Dicamba. Acute and Chronic Dietary Exposure Assessments of Food and Drinking Water to Support the Use of Dicamba on Dicamba-Tolerant Cotton and Soybean for Amended Section 3 Registration, and Registration of the New N,N-Bis-(3-aminopropyl) methylamine (BAPMA) Salt Formulation Executive	<p>“...most highly exposed...children ages 1-2...42% of the cPAD.”</p> <p>“...chronic...children 1-2 years old had the highest chronic dietary risk at 42% of the cPAD.”</p> <p>“...chronic...Children 1-2...42% cPAD.”</p>	2 9 10	Analysis needed: The text, while consistent with the select data presented in summary Table 5 (p 10) appears to be inconsistent with the DEEM-FCID results presented in EPA-HQ-OPP-2016-0187-0011 Dietary Exposure Assessment, Attachment 6, which show population subgroup non-nursing infants at 45.4% of the cPAD.

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	Summary VII. Results/Discussion IX. Conclusions			
EPA-HQ-OPP-2016-0187-016	Proposed Registration of Dicamba on Cotton and Soybean	“This registration for dicamba is being proposed for registration for use in the states of Alabama, Arkansas, Arizona, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, and	23	Add: Iowa to the list of states.

<u>Docket ID No.</u>	<u>Document Name & Section</u>	<u>Text</u>	<u>Page</u>	<u>Comment/Data Needed</u>
		Wisconsin.”		
EPA-HQ-OPP-2016-0187-016	Proposed Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean		17 and other places in document	Buffer is listed as 100 feet rather than 110 feet.
EPA-HQ-OPP-2016-0187-016	Proposed Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean	“There is no evidence of susceptibility to the young following in utero exposure to dicamba acid, dicamba BAPMA or DCSA.”	9	Replace with “Susceptibility to young following in utero exposure to dicamba acid, dicamba BAPMA or DCSA is unlikely.”

Message

From: BHAKTA, TINA [AG/1000] [tina.bhakta@monsanto.com]
Sent: 4/6/2017 2:40:47 PM
To: Montague, Kathryn V. [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c50d485150734f6e85059d64dd80a353-Kathryn V. Montague]; Grant.rowland@Epa.gov
CC: MARVIN, THOMAS [AG/1920] [thomas.marvin@monsanto.com]
Subject: FW: patent search

Hi Kay and Grant,

Great to see you both in person earlier this week.

I wanted to follow up with this search for synergy that we requested for confirmation Feb 14th, that we did not hear back. I wanted to see if at least one product could be confirmed as the cotton growers really need this product for the south immediately based upon the pressure that they are seeing.

Cotoran® 4L Herbicide	66222-181	Fluometuron (41.7%)
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For this AI we have conducted our search and can self-certify that there are no patents with Dicamba related to synergy. Please can you provide guidance on this so that we can proceed with submission of wind tunnel testing.

Finally, were you or Grant able to follow up on the volatility study for RU Xtend (premix) to get an estimate of timing for this product??

Thanks

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: BHAKTA, TINA [AG/1000]
Sent: Monday, March 20, 2017 3:23 PM
To: Montague, Kathryn V. <Montague.Kathryn@epa.gov>
Subject: FW: patent search

Kay

This was the search I was referring too. Initially requested Feb 14th.

Thank you!

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: BHAKTA, TINA [AG/1000]
Sent: Thursday, February 16, 2017 10:01 AM
To: 'Kenny, Daniel' <Kenny.Dan@epa.gov>
Cc: 'Montague, Kathryn V.' <Montague.Kathryn@epa.gov>; 'Rowland, Grant' <Rowland.Grant@epa.gov>
Subject: RE: patent search

Dan and Kay

Do you think we will hear back on this search today?

Thank you

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: BHAKTA, TINA [AG/1000]
Sent: Tuesday, February 14, 2017 10:12 AM
To: Kenny, Daniel <Kenny.Dan@epa.gov>
Cc: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; Rowland, Grant <Rowland.Grant@epa.gov>
Subject: RE: patent search

Dan,

Thank you for the confirmation. Based on how the EPA has looked for the specific combinations that will be applied, there will be a few more products that we will need to add, as in some cases it will not be the individual two way combination that we will be testing but the formulated product might contain 2 AIs and thus when combined with dicamba it might become a 3-way combination and will need to be search for on that basis.

Product	EPA reg No	Active Ingredient Composition
Authority® Maxx Herbicide	279-9560	Sulfentrazone (62.12%) / Chlorimuron Ethyl (3.88%)
Cotoran® 4L Herbicide	66222-181	Fluometuron (41.7%)
Authority® MTZ Herbicide	279-3340	Sulfentrazone (18.0%) / Metribuzin (55.0%)
Authority® XL Herbicide	279-3413	Sulfentrazone (62.22%) / Chlorimuron Ethyl (7.78%)
Fierce®	59639-193	Flumioxazin (33.5%) / Pyroxasulfone (42.5%)
Authority Assist	279-3330	Sulfentrazone (33.33%) / Imazethapyr (6.67%)
Fierce XLT	59639-194	Chlorimuron (6.67%) / Flumioxazin (24.57%) / Pyroxasulfone (31.17%)

Thanks

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: Kenny, Daniel [<mailto:Kenny.Dan@epa.gov>]
Sent: Monday, February 13, 2017 5:17 PM
To: BHAKTA, TINA [AG/1000] <tina.bhakta@monsanto.com>
Cc: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; Rowland, Grant <Rowland.Grant@epa.gov>
Subject: RE: patent search

Hello Tina. We are able to confirm that the specific combinations listed immediately below do not have claims of synergy granted by the Patent and Trademark Office:

1. DICAMBA + SULFENTRAZONE + CLORANSULAM-METHYL
2. DICAMBA + PROMETRYN
3. DICAMBA + LACTOFEN
4. DICAMBA + FOMESAFEN
5. DICAMBA + FLUMIOXAZIN
6. DICAMBA + FLUMIOXAZIN + CHLORIMURON ETHYL
7. DICAMBA + CLETHODIM
8. DICAMBA + PYRITHIOBAC SODIUM
9. DICAMBA + ACETOCHLOR
10. DICAMBA + ACETOCHLOR + FOMESAFEN
11. DICAMBA + SULFENTRAZONE
12. DICAMBA + CLORANSULAM-METHYL
13. DICAMBA + CHLORIMURON ETHYL
14. DICAMBA + METRIBUZIN
15. DICAMBA + DIURON
16. DICAMBA PENDIMETHALIN

Once wind tunnel tests confirm acceptable results for one of the above combinations, that combination may be added to the website as an acceptable tank mix partner (provided, of course, that the tank mix partners are registered for these uses).

Please let me know if you have any questions or need clarification.

Regards,
Dan Kenny

From: BHAKTA, TINA [AG/1000] [<mailto:tina.bhakta@monsanto.com>]

Sent: Tuesday, February 07, 2017 9:56 PM

To: Kenny, Daniel <Kenny.Dan@epa.gov>

Cc: Montague, Kathryn V. <Montague.Kathryn@epa.gov>; Rowland, Grant <Rowland.Grant@epa.gov>

Subject: RE: patent search

Monsanto conducted a search of the US Granted Patent Collection utilizing the Derwent World Patents Index (DWPI) available via Thomson Innovation on September 8, 2016. All text fields in the patent were searched for the keywords dicamba and synerg*.

As described in the synergy paper we submitted the following filters were applied and not considered

- Dicamba + non-herbicide pesticide
- Dicamba + pesticide combination not in claim and no data present
- Dicamba + potential future tank mix partner not in claim but data is present
- Dicamba + herbicide not listed as tank mix partner in claim

We focused on those patent search hits containing those active ingredients that are contained in the final formulated products that we would like approved. The following is the list of tank mix partners that came up with no hits when this type of search was conducted. Dan indicated that you would be driving a confirmation that these active ingredients in the highlighted in the table can be cleared for synergy based on the fact that they come up with no hits. I have also added

more 3 more actives that we would like for you to confirm as well as we have intentions of enabling more products that contain the following active ingredients;

metribuzin
diuron
pendimethalin

Product Name	EPA Registration Number	Active Ingredient Composition
Authority® First	279-3246	Sulfentrazone (62.1%)
		Cloransulam-methyl (30.0%)
Caparol® 4L	100-620	Prometryn (44.4%)
Cobra®	59639-34	Lactofen (24%)
Flexstar® / Reflex®	100-1101 / 100-993	Fomesafen (22.1%) / Fomesafen (22.8%)
Rowel™	59639-524	Flumioxazin (51%)
Rowel™ FX	59639-117-524	Flumioxazin (30.0%)
		Chlorimuron ethyl (10.3%)
Select MAX®	59639-132	Clethodim (12.6%)
Staple® LX	352-613	Pyrithiobac sodium (33.6%)
Warrant®	524-591	Acetochlor (33.0%)
Warrant® Ultra	524-620	Acetochlor (31.1%)
		Fomesafen (6.6%)

Dan indicated that you would be working on this and would confirm all of the active ingredients in the list and table show no synergy hits prior to Friday. Please let me know if you have any questions. I look forward to you confirming these for us.

Thanks

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: BHAKTA, TINA [AG/1000]
Sent: Monday, February 06, 2017 10:58 AM
To: 'Kenny, Daniel' <Kenny.Dan@epa.gov>
Subject: RE: patent search

Dan,

When do you think we will be able to hear back from you particularly on those actives where there are no patent hits. We will be waiting for confirmation from you to indicate that the actives that have no patents hits with dicamba from synergy stand point that these are good to go. Also the rationale that we have provided for you for some of the other products that do have a hit.

Thanks

Tina Bhakta Ph.D.
Global Chemistry Expansion Lead, Regulatory

From: BHAKTA, TINA [AG/1000]
Sent: Thursday, February 02, 2017 3:16 PM
To: Kenny, Daniel <Kenny.Dan@epa.gov>
Subject: patent search

Dan,

I have attached the patent search that we provided you and the search contained 15 A.I.s and the list of herbicide products that we want to initially enable as tank mix partners for 2017 with our Xtendimax product. The two products highlights contain actives that have come up with patent hits. Can you confirm that the rest of the products are cleared from a synergy stand point and that the rationale that we have provided for the other two products fits with EPAs exclusion criteria to also potentially clear them also. This patent paper was submitted to the agency on Dec 5th 2016.

Product Name	EPA Registration Number	Active Ingredient Composition
Authority® First	279-3246	Sulfentrazone (62.1%)
		Cloransulam-methyl (30.0%)
Caparol® 4L	100-620	Prometryn (44.4%)
Cobra®	59639-34	Lactofen (24%)
Fierce®	59639-193	Flumioxazin (33.5%)
		Pyroxasulfone (42.5%)
Flexstar® / Reflex®	100-1101 / 100-993	Fomesafen (22.1%) / Fomesafen (22.8%)
Roundup PowerMax®	524-549	Glyphosate (39.42%)

Rowel™	59639-524	Flumioxazin (51%)
Rowel™ FX	59639-117-524	Flumioxazin (30.0%)
		Chlorimuron ethyl (10.3%)
Select MAX®	59639-132	Clethodim (12.6%)
Staple® LX	352-613	Pyrithiobac sodium (33.6%)
Warrant®	524-591	Acetochlor (33.0%)
Warrant® Ultra	524-620	Acetochlor (31.1%)
		Fomesafen (6.6%)

Tina Bhakta Ph.D.

Global Chemistry Expansion Lead, Regulatory

M: 314-369-5897

O: 314-694-8679

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